

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
4 August 2005 (04.08.2005)

PCT

(10) International Publication Number
WO 2005/069969 A2

- (51) International Patent Classification: **Not classified**
- (21) International Application Number:
PCT/US2005/002059
- (22) International Filing Date: 21 January 2005 (21.01.2005)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/538,149 21 January 2004 (21.01.2004) US
- (71) Applicant (*for all designated States except US*): **UNIVERSITY OF UTAH RESEARCH FOUNDATION** [US/US];
615 Arapen Drive, Suite 110, Salt Lake City, UT 84108 (US).
- (72) Inventors; and
(75) Inventors/Applicants (*for US only*): **LEPPERT, Mark, F.** [US/US]; 1466 Westminster Avenue, Salt Lake City, UT 84105 (US). **SINGH, Nanda, A.** [US/US]; 101 Timberlakes, Heber City, UT 84032 (US).
- (74) Agents: **CURFMAN, Christopher, L.** et al.; Needle & Rosenberg, P.C., Suite 1000, 999 Peachtree Street, Atlanta, GA 30309-3915 (US).
- (81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— *without international search report and to be republished upon receipt of that report*
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

WO 2005/069969 A2

(54) Title: **MUTANT SODIUM CHANNEL Na_v1.7 AND METHODS RELATED THERETO**

(57) **Abstract:** Described are mutant Na_v1.7 sodium channel alpha-subunits and nucleic acid sequences encoding such mutants. Further described are methods for characterizing a nucleic acid sequence that encodes a Na_v1 sodium channel alpha-subunit, methods for determining a Na_v1.7 haplotype, methods for determining a subject's predisposition to a neurologic disorder associated with a sodium channel mutation, and methods of identifying a compound that modulates mutant Na_v1.7 sodium channels. Other materials, compositions, articles, devices, and methods relating to mutant Na_v1.7 sodium channels are also described herein.

SEQUENCE LISTING

<110> Leppert, Mark F.
Singh, Nanda A.

<120> Mutant Sodium Channel Nav1.7 and Methods
Related Thereto

<130> 21101.0048U2

<150> PCT/US05/02059

<151> 2005-01-21

<150> 60/538,149

<151> 2004-01-21

<160> 38

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 5934

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 1

```

atggcaatgt tgcctcccc aggacctcag agctttgtcc atttcacaaa acagtctctt 60
gccctcattg aacaacgcat tgctgaaaga aaatcaaagg aacccaaaga agaaaagaaa 120
gatgatgatg aagaagcccc aaagccaagc agtgacttgg aagctggcaa acaactgccc 180
ttcatctatg gggacattcc tcccgcatg gtgtcagagc ccctggagga cttggacccc 240
tactatgcag acaaaaagac tttcatagta ttgaacaaag ggaaaacaat cttccgtttc 300
aatgccacac ctgctttata tatgctttct ctttccagtc ctctaagaag aatatctatt 360
aagattttag tacactcctt attcagcatg ctcatcatgt gcactattct gacaaactgc 420
atatttatga ccatgaataa cccgccggac tggacaaaa atgtcagata cacttttact 480
ggaatatata cttttgaatc acttgtaaaa atccttgcaa gaggtctctg tgtaggagaa 540
ttcacttttc ttcgtgaccc gtggaactgg ctggattttg tcgtcattgt ttttgcgtat 600
ttaacagaat ttgtaaacct aggcaatgtt tcagctcttc gaactttcag agtattgaga 660
gctttgaaaa ctattttctgt aatcccaggc ctgaagacaa ttgtaggggc tttgatccag 720
tcagtgaaga agctttctga tgtcatgac ctgactgtgt tctgtctgag tgtgtttgca 780
ctaattggac tacagctgtt catgggaaac ctgaagcata aatgttttcg aaattcactt 840
gaaaataatg aaacattaga aagcataatg aataccctag agagtgaaga agactttaga 900
aaatatTTTT attacttgga aggatccaaa gatgctctcc tttgtggttt cagcacagat 960
tcaggtcagt gtccagaggg gtacacctgt gtgaaaattg gcagaaaccc tgattatggc 1020
tacacgagct ttgacacttt cagctgggcc ttcttagcct tgtttaggct aatgaccaa 1080
gattactggg aaaaccttta ccaacagacg ctgctgtctg ctggcaaaac ctacatgac 1140
ttctttgtcg tagtgatttt cctgggctcc ttttatctaa taaacttgat cctggctgtg 1200
gttgccatgg catatgaaga acagaaccag gcaaaccattg aagaagctaa acagaaaaga 1260
ttagaatttc aacagatgtt agaccgtctt aaaaaagagc aagaagaagc tgaggcaatt 1320
gcagcggcag cggctgaata tacaagtatt aggagaagca gaattatggg cctctcagag 1380
agtctctctg aaacatccaa actgagctct aaaaagtgcta aagaaagaag aaacagaaga 1440
aagaaaaaga atcaaaagaa gctctccagt ggagaggaaa agggagatgc tgagaaattg 1500
tcgaaatcag aatcagagga cagcatcaga agaaaaagtt tccaccttgg tgtcgaaggg 1560

```

cataggcgag	cacatgaaaa	gaggttgtct	acccccaatc	agtcaccact	cagcattcgt	1620
ggctccttgt	tttctgcaag	gcgaagcagc	agaacaagtc	tttttagttt	caaaggcaga	1680
ggaagagata	taggatctga	gactgaattt	gccgatgatg	agcacagcat	ttttggagac	1740
aatgagagca	gaaggggctc	actgttttgt	ccccacagac	cccaggagcg	acgcagcagt	1800
aacatcagcc	aagccagtag	gtccccacca	atgctgccgg	tgaacgggaa	aatgcacagt	1860
gctgtggact	gcaacggtgt	ggtctccctg	gttgatggac	gctcagccct	catgctcccc	1920
aatggacagc	ttctgccaga	gggcacgacc	aatcaaatac	acaagaaaag	gcgttgtagt	1980
tcctatctcc	tttcagagga	tatgctgaat	gatcccaacc	tcagacagag	agcaatgagt	2040
agagcaagca	tattaacaaa	cactgtggaa	gaacttgaa	agtccagaca	aaaatgtcca	2100
ccttggtggt	acagatttgc	acacaaattc	ttgatctgga	attgctctcc	atattggata	2160
aaattcaaaa	agtgtatcta	ttttattgta	atggatcctt	ttgtagatct	tgcaattacc	2220
atttgcatag	ttttaaacac	attatttatg	gctatggaac	accaccaat	gactgaggaa	2280
ttcaaaaatg	tacttgctat	aggaaatttg	gtctttactg	gaatctttgc	agctgaaatg	2340
gtattaaaac	tgattgccat	ggatccatat	gagtatttcc	aagtaggctg	gaatattttt	2400
gacagcctta	ttgtgacttt	aagttttagt	gagctcttcc	tagcagatgt	ggaaggattg	2460
tcagtctctg	gatcattcag	actgctccga	gtcttcaagt	tggcaaaatc	ctggccaaca	2520
ttgaacatgc	tgattaagat	cattggtaac	tcagtagggg	ctctaggtaa	cctcacctta	2580
gtggtggcca	tcatcgctct	cattttttgct	gtggtcggca	tgacgctctt	tggtaaagac	2640
tacaaagaat	gtgctgcaa	gatcaatgat	gactgtacgc	tcccacggtg	gcacatgaac	2700
gacttcttcc	actccttcc	gattgtgttc	cgcggtgctg	gtggagagt	gatagagacc	2760
atgtgggact	gtatggagg	cgctgggtcaa	gctatgtgcc	ttattgttta	catgatggtc	2820
atggtcattg	gaaacctggt	ggtcctaaac	ctatttctgg	ccttattatt	gagctcattt	2880
agttcagaca	atcttacagc	aattgaagaa	gacctgatg	caacaacct	ccagattgca	2940
gtgactagaa	ttaaaaaggg	aataaattat	gtgaaacaaa	ccttacgtga	atttattcta	3000
aaagcatttt	ccaaaaagcc	aaagatttcc	agggagataa	gacaagcaga	agatctgaat	3060
actaagaagg	aaaactatat	ttctaaccat	acacttgctg	aaatgagcaa	aggtcacaat	3120
ttcctcaagg	aaaaagataa	aatcagtggt	tttggaagca	gcgtggacaa	acacttgatg	3180
gaagacagt	atggtcaatc	atttattcac	aatcccagcc	tcacagtgc	agtgccaatt	3240
gcacctgggg	aatccgattt	ggaaaatatg	aatgctgagg	aacttagcag	tgattcggat	3300
agtgaatata	gcaaagttag	attaaaccgg	tcaagctcct	cagagtgcag	cacagttgat	3360
aaccttttgc	ctggagaagg	agaagaagca	gaggctgaac	ctatgaattc	cgatgagcca	3420
gaggcctggt	tcacagatgg	ttgtgtacgg	aggttctcat	gctgccaa	taacatagag	3480
tcagggaagg	gaaaaatctg	gtggaacatc	aggaaaacct	gctacaagat	tggtgaacac	3540
agttggtttg	aaagcttcat	tgctctcatg	atcctgctca	gcagtgggtg	cctggctttt	3600
gaagatattt	atattgaaag	gaaaaagacc	attaagatta	tcctggagta	tgagacaaag	3660
atcttcactt	acatcttcat	tctggaaatg	cttctaaaat	ggatagcata	tggttataaa	3720
acatatattca	ccaatgcctg	gtgttggtg	gatttcttaa	ttgttgatgt	ttctttggtt	3780
acttttagtg	caaacactct	tggtacttca	gatcttggcc	ccattaaatc	ccttcggaca	3840
ctgagagctt	taagacctct	aagagcctta	tctagatttg	aaggaatgag	ggtcggttg	3900
aatgcactca	taggagcaat	tccttccatc	atgaatgtgc	tacttgtgtg	tcttatattc	3960
tggctgatat	tcagcatcat	gggagtaaat	ttgtttgctg	gcaagttcta	tgagtgtatt	4020
aacaccacag	atgggtcacg	gtttcctgca	agtcaggttc	caaatcggtc	cgaatgtttt	4080
gcccttatga	atgttagtca	aaatgtgcga	tgaaaaaacc	tgaaagtga	ctttgataat	4140
gtcggacttg	gttacctatc	tctgcttcaa	gttgcaactt	ttaagggatg	gacgattatt	4200
atgtatgcag	cagtggattc	tggtaatgta	gacaagcagc	ccaaatatga	atatagcctc	4260
tacatgtata	tttattttgt	cgtctttatc	atctttgggt	cattcttcac	tttgaacttg	4320
ttcattgggt	tcataataga	taatttcaac	caacagaaaa	agaagcttgg	aggtcaagac	4380
atctttatga	cagaagaaca	gaagaaatc	tataatgcaa	tgaaaaagct	ggggtccaag	4440
aagccacaaa	agccaattcc	tcgaccaggg	aacaaaatcc	aaggatgtat	atttgacctg	4500
gtgacaaatc	aagcctttga	tatttagtat	atggttctta	tctgtctcaa	catggtaacc	4560
atgatggtag	aaaaggagg	tcaaagtcaa	catatgactg	aagttttata	ttggataaat	4620
gtggttttta	taatcctttt	cactggagaa	tggtgtgtaa	aactgatctc	cctcagacac	4680
tactacttca	ctgtaggatg	gaatattttt	gattttgtgg	ttgtgattat	ctccattgta	4740
ggtatgtttc	tagctgattt	gattgaaacg	tattttgtgt	cccctaccct	gttccgagtg	4800
atccgtcttg	ccaggattgg	ccgaatccta	cgtctagtca	aaggagcaaa	ggggatccgc	4860
acgctgctct	ttgctttgat	gatgtccctt	cctcggttgt	ttaacatcgg	cctcctgctc	4920

```

ttcctgggtca tgttcaccta cgccatcttt ggaatgtcca actttgccta tgttaaaaag 4980
gaagatggaa ttaatgacat gttcaatfff gagacctttg gcaacagtat gatttgcctg 5040
ttccaaatta caacctctgc tggctgggat ggattgctag cacctattct taacagtaag 5100
ccacccgact gtgacccaaa aaaagtccat cctggaagtt cagttgaagg agactgtggt 5160
aaccatctg ttggaatatt ctactttggt agttatatca tcatatcctt cctggttgtg 5220
gtgaacatgt acattgcagt catactggag aatttttagt ttgccactga agaaagtact 5280
gaacctctga gtgaggatga ctttgagatg ttctatgagg tttgggagaa gtttgatccc 5340
gatgcgaccc agtttataga gttctctaaa ctctctgatt ttgcagctgc cctggatcct 5400
cctcttctca tagcaaaacc caacaaagtc cagctcattg ccatggatct gcccatgggt 5460
agtggtgacc ggatccattg tcttgacatc ttatttgctt ttacaaagcg tgttttgggt 5520
gagagtgggg agatggattc tcttcgttca cagatggaag aaaggttcat gtctgcaaat 5580
ccttccaaag tgtcctatga acccatcaca accacactaa aacggaaaca agaggatgtg 5640
tctgctactg tcattcagcg tgcttataga cgttaccgct taaggcaaaa tgtcaaaaat 5700
atatcaagta tatacataaa agatggagac agagatgatg atttactcaa taaaaaagat 5760
atggcttttg ataattgttaa tgagaactca agtccagaaa aaacagatgc cacttcatcc 5820
accacctctc caccttcata tgatagtgtg acaaagccag acaaagagaa atatgaacaa 5880
gacagaacag aaaaggaaga caaagggaaa gacagcaagg aaagcaaaaa atag 5934

```

<210> 2

<211> 1977

<212> PRT

<213> Homo Sapien

<400> 2

```

Met Ala Met Leu Pro Pro Pro Gly Pro Gln Ser Phe Val His Phe Thr
1      5      10      15
Lys Gln Ser Leu Ala Leu Ile Glu Gln Arg Ile Ala Glu Arg Lys Ser
20     25     30
Lys Glu Pro Lys Glu Glu Lys Lys Asp Asp Asp Glu Glu Ala Pro Lys
35     40     45
Pro Ser Ser Asp Leu Glu Ala Gly Lys Gln Leu Pro Phe Val Tyr Gly
50     55     60
Asp Ile Pro Pro Gly Met Val Ser Glu Pro Leu Glu Asp Leu Asp Pro
65     70     75     80
Tyr Tyr Ala Asp Lys Lys Thr Phe Ile Val Leu Asn Lys Gly Lys Thr
85     90     95
Ile Phe Arg Phe Asn Ala Thr Pro Ala Leu Tyr Met Leu Ser Pro Phe
100    105    110
Ser Pro Leu Arg Arg Ile Ser Ile Lys Ile Leu Val His Ser Leu Phe
115    120    125
Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Ile Phe Met Thr
130    135    140
Met Asn Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr Phe Thr
145    150    155    160
Gly Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile Leu Ala Arg Gly Phe
165    170    175
Cys Val Gly Glu Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp Leu Asp
180    185    190
Phe Val Val Ile Val Phe Ala Tyr Leu Thr Glu Phe Val Asn Leu Gly
195    200    205
Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu Lys Thr
210    215    220
Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu Ile Gln
225    230    235    240
Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe Cys Leu

```

				245						250						255	
Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	Met	Gly	Asn	Leu	Lys		
			260					265					270				
His	Lys	Cys	Phe	Arg	Asn	Ser	Leu	Glu	Asn	Asn	Glu	Thr	Leu	Glu	Ser		
			275				280					285					
Ile	Met	Asn	Thr	Leu	Glu	Ser	Glu	Glu	Asp	Phe	Arg	Lys	Tyr	Phe	Tyr		
	290					295				300							
Tyr	Leu	Glu	Gly	Ser	Lys	Asp	Ala	Leu	Leu	Cys	Gly	Phe	Ser	Thr	Asp		
305					310					315					320		
Ser	Gly	Gln	Cys	Pro	Glu	Gly	Tyr	Thr	Cys	Val	Lys	Ile	Gly	Arg	Asn		
				325					330					335			
Pro	Asp	Tyr	Gly	Tyr	Thr	Ser	Phe	Asp	Thr	Phe	Ser	Trp	Ala	Phe	Leu		
			340					345					350				
Ala	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp	Tyr	Trp	Glu	Asn	Leu	Tyr	Gln		
		355					360					365					
Gln	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	Met	Ile	Phe	Phe	Val	Val		
	370					375				380							
Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Ile	Asn	Leu	Ile	Leu	Ala	Val		
385					390					395					400		
Val	Ala	Met	Ala	Tyr	Glu	Glu	Gln	Asn	Gln	Ala	Asn	Ile	Glu	Glu	Ala		
			405					410					415				
Lys	Gln	Lys	Glu	Leu	Glu	Phe	Gln	Gln	Met	Leu	Asp	Arg	Leu	Lys	Lys		
			420					425					430				
Glu	Gln	Glu	Glu	Ala	Glu	Ala	Ile	Ala	Ala	Ala	Ala	Ala	Glu	Tyr	Thr		
		435				440						445					
Ser	Ile	Arg	Arg	Ser	Arg	Ile	Met	Gly	Leu	Ser	Glu	Ser	Ser	Ser	Glu		
	450					455				460							
Thr	Ser	Lys	Leu	Ser	Ser	Lys	Ser	Ala	Lys	Glu	Arg	Arg	Asn	Arg	Arg		
465					470					475					480		
Lys	Lys	Lys	Asn	Gln	Lys	Lys	Leu	Ser	Ser	Gly	Glu	Glu	Lys	Gly	Asp		
			485						490					495			
Ala	Glu	Lys	Leu	Ser	Lys	Ser	Glu	Ser	Glu	Asp	Ser	Ile	Arg	Arg	Lys		
			500					505					510				
Ser	Phe	His	Leu	Gly	Val	Glu	Gly	His	Arg	Arg	Ala	His	Glu	Lys	Arg		
	515					520						525					
Leu	Ser	Thr	Pro	Asn	Gln	Ser	Pro	Leu	Ser	Ile	Arg	Gly	Ser	Leu	Phe		
	530					535				540							
Ser	Ala	Arg	Arg	Ser	Ser	Arg	Thr	Ser	Leu	Phe	Ser	Phe	Lys	Gly	Arg		
545					550					555				560			
Gly	Arg	Asp	Ile	Gly	Ser	Glu	Thr	Glu	Phe	Ala	Asp	Asp	Glu	His	Ser		
			565						570					575			
Ile	Phe	Gly	Asp	Asn	Glu	Ser	Arg	Arg	Gly	Ser	Leu	Phe	Val	Pro	His		
			580					585									

690		695		700
Arg Phe Ala His Lys	Phe Leu Ile Trp Asn Cys	Ser Pro Tyr Trp Ile		
705	710	715		720
Lys Phe Lys Lys Cys	Ile Tyr Phe Ile Val Met	Asp Pro Phe Val Asp		
	725	730		735
Leu Ala Ile Thr Ile	Cys Ile Val Leu Asn Thr	Leu Phe Met Ala Met		
	740	745		750
Glu His His Pro Met	Thr Glu Glu Phe Lys Asn	Val Leu Ala Ile Gly		
	755	760		765
Asn Leu Val Phe Thr	Gly Ile Phe Ala Ala Glu	Met Val Leu Lys Leu		
	770	775		780
Ile Ala Met Asp Pro	Tyr Glu Tyr Phe Gln Val	Gly Trp Asn Ile Phe		
785	790	795		800
Asp Ser Leu Ile Val	Thr Leu Ser Leu Val Glu	Leu Phe Leu Ala Asp		
	805	810		815
Val Glu Gly Leu Ser	Val Leu Arg Ser Phe Arg	Leu Leu Arg Val Phe		
	820	825		830
Lys Leu Ala Lys Ser	Trp Pro Thr Leu Asn Met	Leu Ile Lys Ile Ile		
	835	840		845
Gly Asn Ser Val Gly	Ala Leu Gly Asn Leu Thr	Leu Val Leu Ala Ile		
	850	855		860
Ile Val Phe Ile Phe	Ala Val Val Gly Met Gln	Leu Phe Gly Lys Ser		
865	870	875		880
Tyr Lys Glu Cys Val	Cys Lys Ile Asn Asp Asp	Cys Thr Leu Pro Arg		
	885	890		895
Trp His Met Asn Asp	Phe Phe His Ser Phe Leu	Ile Val Phe Arg Val		
	900	905		910
Leu Cys Gly Glu Trp	Ile Glu Thr Met Trp Asp	Cys Met Glu Val Ala		
	915	920		925
Gly Gln Ala Met Cys	Leu Ile Val Tyr Met Met	Val Met Val Ile Gly		
	930	935		940
Asn Leu Val Val Leu	Asn Leu Phe Leu Ala Leu	Leu Leu Leu Ser Ser Phe		
	950	955		960
Ser Ser Asp Asn Leu	Thr Ala Ile Glu Glu Asp	Pro Asp Ala Asn Asn		
	965	970		975
Leu Gln Ile Ala Val	Thr Arg Ile Lys Lys Gly	Ile Asn Tyr Val Lys		
	980	985		990
Gln Thr Leu Arg Glu	Phe Ile Leu Lys Ala Phe	Ser Lys Lys Pro Lys		
	995	1000		1005
Ile Ser Arg Glu Ile	Arg Gln Ala Glu Asp Leu	Asn Thr Lys Lys Glu		
	1010	1015		1020
Asn Tyr Ile Ser Asn	His Thr Leu Ala Glu Met	Ser Lys Gly His Asn		
1025	1030	1035		1040
Phe Leu Lys Glu Lys	Asp Lys Ile Ser Gly Phe	Gly Ser Ser Val Asp		
	1045	1050		1055
Lys His Leu Met Glu	Asp Ser Asp Gly Gln Ser	Phe Ile His Asn Pro		
	1060	1065		1070
Ser Leu Thr Val Thr	Val Pro Ile Ala Pro Gly	Glu Ser Asp Leu Glu		
	1075	1080		1085
Asn Met Asn Ala Glu	Glu Leu Ser Ser Asp Ser	Asp Ser Glu Tyr Ser		
	1090	1095		1100
Lys Val Arg Leu Asn	Arg Ser Ser Ser Ser Glu	Cys Ser Thr Val Asp		
1105	1110	1115		1120
Asn Pro Leu Pro Gly	Glu Gly Glu Glu Ala Glu	Ala Glu Pro Met Asn		
	1125	1130		1135
Ser Asp Glu Pro Glu	Ala Cys Phe Thr Asp Gly	Cys Val Arg Arg Phe		

	1140		1145		1150
Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp					
1155		1160		1165	
Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu					
1170		1175		1180	
Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe					
1185		1190		1195	1200
Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu					
1205		1210		1215	
Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu					
1220		1225		1230	
Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys					
1235		1240		1245	
Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala					
1250		1255		1260	
Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr					
1265		1270		1275	1280
Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met					
1285		1290		1295	
Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn					
1300		1305		1310	
Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly					
1315		1320		1325	
Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp					
1330		1335		1340	
Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe					
1345		1350		1355	1360
Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val					
1365		1370		1375	
Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala					
1380		1385		1390	
Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val					
1395		1400		1405	
Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile					
1410		1415		1420	
Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu					
1425		1430		1435	1440
Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys Leu					
1445		1450		1455	
Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn					
1460		1465		1470	
Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg					
1475		1480		1485	
Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln					
1490		1495		1500	
Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr					
1505		1510		1515	1520
Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu					
1525		1530		1535	
Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val					
1540		1545		1550	
Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn					
1555		1560		1565	
Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu					
1570		1575		1580	
Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val					

```

1585          1590          1595          1600
Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala
          1605          1610          1615
Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala
          1620          1625          1630
Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala
          1635          1640          1645
Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile
          1650          1655          1660
Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
1665          1670          1675          1680
Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile
          1685          1690          1695
Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly
          1700          1705          1710
Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr
          1715          1720          1725
Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr
          1730          1735          1740
Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr
1745          1750          1755          1760
Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
          1765          1770          1775
Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
          1780          1785          1790
Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
          1795          1800          1805
Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
          1810          1815          1820
Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly
1825          1830          1835          1840
Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe
          1845          1850          1855
Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr
          1860          1865          1870
Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala
          1875          1880          1885
Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile
          1890          1895          1900
Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp
1905          1910          1915          1920
Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
          1925          1930          1935
Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys
          1940          1945          1950
Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys
          1955          1960          1965
Gly Lys Asp Ser Lys Glu Ser Lys Lys
          1970          1975

```

```

<210> 3
<211> 1977
<212> PRT
<213> Homo Sapien

```


<400> 3

Met	Ala	Met	Leu	Pro	Pro	Pro	Gly	Pro	Gln	Ser	Phe	Val	His	Phe	Thr
1				5					10					15	
Lys	Gln	Ser	Leu	Ala	Leu	Ile	Glu	Gln	Arg	Ile	Ala	Glu	Arg	Lys	Ser
			20					25					30		
Lys	Glu	Pro	Lys	Glu	Glu	Lys	Lys	Asp	Asp	Asp	Glu	Glu	Ala	Pro	Lys
		35					40					45			
Pro	Ser	Ser	Asp	Leu	Glu	Ala	Gly	Lys	Gln	Leu	Pro	Phe	Ile	Tyr	Gly
		50				55					60				
Asp	Ile	Pro	Pro	Gly	Met	Val	Ser	Glu	Pro	Leu	Glu	Asp	Leu	Asp	Pro
65				70						75					80
Tyr	Tyr	Ala	Asp	Lys	Lys	Thr	Phe	Ile	Val	Leu	Asn	Lys	Gly	Lys	Thr
			85						90					95	
Ile	Phe	Arg	Phe	Asn	Ala	Thr	Pro	Ala	Leu	Tyr	Met	Leu	Ser	Pro	Phe
			100					105						110	
Ser	Pro	Leu	Arg	Arg	Ile	Ser	Ile	Lys	Ile	Leu	Val	His	Ser	Leu	Phe
		115						120					125		
Ser	Met	Leu	Ile	Met	Cys	Thr	Ile	Leu	Thr	Asn	Cys	Ile	Phe	Met	Thr
	130					135					140				
Met	Asn	Asn	Pro	Gln	Asp	Trp	Thr	Lys	Asn	Val	Glu	Tyr	Thr	Phe	Thr
145				150						155					160
Gly	Ile	Tyr	Thr	Phe	Glu	Ser	Leu	Val	Lys	Ile	Leu	Ala	Arg	Gly	Phe
				165					170					175	
Cys	Val	Gly	Glu	Phe	Thr	Phe	Leu	Arg	Asp	Pro	Trp	Asn	Trp	Leu	Asp
			180					185						190	
Phe	Val	Val	Ile	Val	Phe	Ala	Tyr	Leu	Thr	Glu	Phe	Val	Asn	Leu	Gly
		195					200					205			
Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu	Arg	Ala	Leu	Lys	Thr
	210					215					220				
Ile	Ser	Val	Ile	Pro	Gly	Leu	Lys	Thr	Ile	Val	Gly	Ala	Leu	Ile	Gln
225					230					235					240
Ser	Val	Lys	Lys	Leu	Ser	Asp	Val	Met	Ile	Leu	Thr	Val	Phe	Cys	Leu
			245						250					255	
Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	Met	Gly	Asn	Leu	Lys
		260					265						270		
His	Lys	Cys	Phe	Arg	Asn	Ser	Leu	Glu	Asn	Asn	Glu	Thr	Leu	Glu	Ser
		275					280						285		
Ile	Met	Asn	Thr	Leu	Glu	Ser	Glu	Glu	Asp	Phe	Arg	Lys	Tyr	Phe	Tyr
	290					295					300				
Tyr	Leu	Glu	Gly	Ser	Lys	Asp	Ala	Leu	Leu	Cys	Gly	Phe	Ser	Thr	Asp
305					310					315					320
Ser	Gly	Gln	Cys	Pro	Glu	Gly	Tyr	Thr	Cys	Val	Lys	Ile	Gly	Arg	Asn
			325						330					335	
Pro	Asp	Tyr	Gly	Tyr	Thr	Ser	Phe	Asp	Thr	Phe	Ser	Trp	Ala	Phe	Leu
			340					345						350	
Ala	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp	Tyr	Trp	Glu	Asn	Leu	Tyr	Gln
		355					360						365		
Gln	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	Met	Ile	Phe	Phe	Val	Val
		370				375					380				
Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Ile	Asn	Leu	Ile	Leu	Ala	Val
385					390					395					400
Val	Ala	Met	Ala	Tyr	Glu	Glu	Gln	Asn	Gln	Ala	Asn	Ile	Glu	Glu	Ala
			405						410					415	
Lys	Gln	Lys	Glu	Leu	Glu	Phe	Gln	Gln	Met	Leu	Asp	Arg	Leu	Lys	Lys
			420					425					430		

Glu 435	Gln 440	Glu 445	Glu 450	Ala 455	Ala 460	Ala 465	Ala 470	Ala 475	Ala 480	Ala 485	Ala 490	Ala 495	Ala 500	Glu 505	Tyr 510	Thr 515
Ser 450	Ile 455	Arg 460	Arg 465	Ser 470	Arg 475	Ile 480	Met 485	Gly 490	Leu 495	Ser 500	Glu 505	Ser 510	Ser 515	Ser 520	Ser 525	Glu 530
Thr 465	Ser 470	Lys 475	Leu 480	Ser 485	Ser 490	Lys 495	Ser 500	Ala 505	Lys 510	Glu 515	Arg 520	Arg 525	Asn 530	Arg 535	Arg 540	Arg 545
Lys 485	Lys 490	Lys 495	Asn 500	Gln 505	Lys 510	Lys 515	Leu 520	Ser 525	Ser 530	Gly 535	Glu 540	Glu 545	Lys 550	Gly 555	Asp 560	Asp 565
Ala 500	Glu 505	Lys 510	Leu 515	Ser 520	Lys 525	Ser 530	Glu 535	Ser 540	Glu 545	Asp 550	Ser 555	Ile 560	Arg 565	Arg 570	Lys 575	Lys 580
Ser 515	Phe 520	His 525	Leu 530	Gly 535	Val 540	Glu 545	Gly 550	His 555	Arg 560	Arg 565	Ala 570	His 575	Glu 580	Lys 585	Arg 590	Arg 595
Leu 530	Ser 535	Thr 540	Pro 545	Asn 550	Gln 555	Ser 560	Pro 565	Leu 570	Ser 575	Ile 580	Arg 585	Gly 590	Ser 595	Leu 600	Phe 605	Phe 610
Ser 545	Ala 550	Arg 555	Arg 560	Ser 565	Ser 570	Arg 575	Thr 580	Ser 585	Leu 590	Phe 595	Ser 600	Phe 605	Lys 610	Gly 615	Arg 620	Arg 625
Gly 565	Arg 570	Asp 575	Ile 580	Gly 585	Ser 590	Glu 595	Thr 600	Glu 605	Phe 610	Ala 615	Asp 620	Asp 625	Glu 630	His 635	Ser 640	Ser 645
Ile 580	Phe 585	Gly 590	Asp 595	Asn 600	Glu 605	Ser 610	Arg 615	Arg 620	Gly 625	Ser 630	Leu 635	Phe 640	Val 645	Pro 650	His 655	His 660
Arg 595	Pro 600	Gln 605	Glu 610	Arg 615	Arg 620	Ser 625	Ser 630	Asn 635	Ile 640	Ser 645	Gln 650	Ala 655	Ser 660	Arg 665	Ser 670	Ser 675
Pro 610	Pro 615	Met 620	Leu 625	Pro 630	Val 635	Asn 640	Gly 645	Lys 650	Met 655	His 660	Ser 665	Ala 670	Val 675	Asp 680	Cys 685	Cys 690
Asn 625	Gly 630	Val 635	Val 640	Ser 645	Leu 650	Val 655	Asp 660	Gly 665	Arg 670	Ser 675	Ala 680	Leu 685	Met 690	Leu 695	Pro 700	Pro 705
Asn 640	Gly 645	Gln 650	Leu 655	Leu 660	Pro 665	Glu 670	Gly 675	Thr 680	Thr 685	Asn 690	Gln 695	Ile 700	His 705	Lys 710	Lys 715	Lys 720
Arg 660	Arg 665	Cys 670	Ser 675	Ser 680	Tyr 685	Leu 690	Leu 695	Ser 700	Glu 705	Asp 710	Met 715	Leu 720	Asn 725	Asp 730	Pro 735	Pro 740
Asn 675	Leu 680	Arg 685	Gln 690	Arg 695	Ala 700	Met 705	Ser 710	Arg 715	Ala 720	Ser 725	Ile 730	Leu 735	Thr 740	Asn 745	Thr 750	Thr 755
Val 690	Glu 695	Glu 700	Leu 705	Glu 710	Glu 715	Ser 720	Arg 725	Gln 730	Lys 735	Cys 740	Pro 745	Pro 750	Trp 755	Trp 760	Trp 765	Tyr 770
Arg 705	Phe 710	Ala 715	His 720	Lys 725	Phe 730	Leu 735	Ile 740	Trp 745	Asn 750	Cys 755	Ser 760	Pro 765	Tyr 770	Trp 775	Trp 780	Ile 785
Lys 720	Phe 725	Lys 730	Lys 735	Cys 740	Ile 745	Tyr 750	Phe 755	Ile 760	Val 765	Met 770	Asp 775	Pro 780	Phe 785	Val 790	Val 795	Asp 800
Leu 740	Ala 745	Ile 750	Thr 755	Ile 760	Cys 765	Ile 770	Val 775	Leu 780	Asn 785	Thr 790	Leu 795	Phe 800	Met 805	Ala 810	Met 815	Met 820
Glu 755	His 760	His 765	Pro 770	Met 775	Thr 780	Glu 785	Glu 790	Phe 795	Lys 800	Asn 805	Val 810	Leu 815	Val 820	Ala 825	Ile 830	Gly 835
Asn 770	Leu 775	Val 780	Phe 785	Thr 790	Gly 795	Ile 800	Phe 805	Ala 810	Ala 815	Glu 820	Met 825	Val 830	Leu 835	Leu 840	Lys 845	Leu 850
Ile 785	Ala 790	Met 795	Asp 800	Pro 805	Tyr 810	Glu 815	Tyr 820	Phe 825	Gln 830	Val 835	Gly 840	Trp 845	Asn 850	Ile 855	Phe 860	Phe 865</

Tyr Lys Glu Cys Val Cys Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg
 885 890 895
 Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val Phe Arg Val
 900 905 910
 Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ala
 915 920 925
 Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly
 930 935 940
 Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe
 945 950 955 960
 Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn
 965 970 975
 Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys
 980 985 990
 Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys
 995 1000 1005
 Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu
 1010 1015 1020
 Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn
 1025 1030 1035 1040
 Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp
 1045 1050 1055
 Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro
 1060 1065 1070
 Ser Leu Thr Val Thr Val Pro Ile Ala Pro Gly Glu Ser Asp Leu Glu
 1075 1080 1085
 Asn Met Asn Ala Glu Glu Leu Ser Ser Asp Ser Asp Ser Glu Tyr Ser
 1090 1095 1100
 Lys Val Arg Leu Asn Arg Ser Ser Ser Ser Glu Cys Ser Thr Val Asp
 1105 1110 1115 1120
 Asn Pro Leu Pro Gly Glu Gly Glu Glu Ala Glu Ala Glu Pro Met Asn
 1125 1130 1135
 Ser Asp Glu Pro Glu Ala Cys Phe Thr Asp Gly Cys Val Arg Arg Phe
 1140 1145 1150
 Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp
 1155 1160 1165
 Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu
 1170 1175 1180
 Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe
 1185 1190 1195 1200
 Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu
 1205 1210 1215
 Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu
 1220 1225 1230
 Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys
 1235 1240 1245
 Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala
 1250 1255 1260
 Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr
 1265 1270 1275 1280
 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met
 1285 1290 1295
 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn
 1300 1305 1310
 Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly
 1315 1320 1325

Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp
 1330 1335 1340
 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe
 1345 1350 1355 1360
 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val
 1365 1370 1375
 Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala
 1380 1385 1390
 Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val
 1395 1400 1405
 Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile
 1410 1415 1420
 Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu
 1425 1430 1435 1440
 Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys Leu
 1445 1450 1455
 Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn
 1460 1465 1470
 Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg
 1475 1480 1485
 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln
 1490 1495 1500
 Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr
 1505 1510 1515 1520
 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu
 1525 1530 1535
 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val
 1540 1545 1550
 Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn
 1555 1560 1565
 Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu
 1570 1575 1580
 Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val
 1585 1590 1595 1600
 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala
 1605 1610 1615
 Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala
 1620 1625 1630
 Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala
 1635 1640 1645
 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile
 1650 1655 1660
 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
 1665 1670 1675 1680
 Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile
 1685 1690 1695
 Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly
 1700 1705 1710
 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr
 1715 1720 1725
 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr
 1730 1735 1740
 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr
 1745 1750 1755 1760
 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
 1765 1770 1775

Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
 1780 1785 1790
 Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
 1795 1800 1805
 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
 1810 1815 1820
 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly
 1825 1830 1835 1840
 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe
 1845 1850 1855
 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr
 1860 1865 1870
 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala
 1875 1880 1885
 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile
 1890 1895 1900
 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp
 1905 1910 1915 1920
 Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
 1925 1930 1935
 Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys
 1940 1945 1950
 Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys
 1955 1960 1965
 Gly Lys Asp Ser Lys Glu Ser Lys Lys
 1970 1975

<210> 4
 <211> 1977
 <212> PRT
 <213> Homo Sapien

<400> 4
 Met Ala Met Leu Pro Pro Pro Gly Pro Gln Ser Phe Val His Phe Thr
 1 5 10 15
 Lys Gln Ser Leu Ala Leu Ile Glu Gln Arg Ile Ala Glu Arg Lys Ser
 20 25 30
 Lys Glu Pro Lys Glu Glu Lys Lys Asp Asp Asp Glu Glu Ala Pro Lys
 35 40 45
 Pro Ser Ser Asp Leu Glu Ala Gly Lys Gln Leu Pro Phe Ile Tyr Gly
 50 55 60
 Asp Ile Pro Pro Gly Met Val Ser Glu Pro Leu Glu Asp Leu Asp Pro
 65 70 75 80
 Tyr Tyr Ala Asp Lys Lys Thr Phe Ile Val Leu Asn Lys Gly Lys Thr
 85 90 95
 Ile Phe Arg Phe Asn Ala Thr Pro Ala Leu Tyr Met Leu Ser Pro Phe
 100 105 110
 Ser Pro Leu Arg Arg Ile Ser Ile Lys Ile Leu Val His Ser Leu Phe
 115 120 125
 Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Ile Phe Met Thr
 130 135 140
 Met Asn Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr Phe Thr
 145 150 155 160
 Gly Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile Leu Ala Arg Gly Phe

				165					170					175	
Cys	Val	Gly	Glu	Phe	Thr	Phe	Leu	Arg	Asp	Pro	Trp	Asn	Trp	Leu	Asp
			180					185				190			
Phe	Val	Val	Ile	Val	Phe	Ala	Tyr	Leu	Thr	Glu	Phe	Val	Asn	Leu	Gly
		195					200					205			
Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu	Arg	Ala	Leu	Lys	Thr
	210					215				220					
Ile	Ser	Val	Ile	Pro	Gly	Leu	Lys	Thr	Ile	Val	Gly	Ala	Leu	Ile	Gln
225					230					235					240
Ser	Val	Lys	Lys	Leu	Ser	Asp	Val	Met	Ile	Leu	Thr	Val	Phe	Cys	Leu
				245					250					255	
Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	Met	Gly	Asn	Leu	Lys
			260					265					270		
His	Lys	Cys	Phe	Arg	Asn	Ser	Leu	Glu	Asn	Asn	Glu	Thr	Leu	Glu	Ser
		275					280					285			
Ile	Met	Asn	Thr	Leu	Glu	Ser	Glu	Glu	Asp	Phe	Arg	Lys	Tyr	Phe	Tyr
	290					295				300					
Tyr	Leu	Glu	Gly	Ser	Lys	Asp	Ala	Leu	Leu	Cys	Gly	Phe	Ser	Thr	Asp
305					310					315					320
Ser	Gly	Gln	Cys	Pro	Glu	Gly	Tyr	Thr	Cys	Val	Lys	Ile	Gly	Arg	Asn
				325					330					335	
Pro	Asp	Tyr	Gly	Tyr	Thr	Ser	Phe	Asp	Thr	Phe	Ser	Trp	Ala	Phe	Leu
			340					345					350		
Ala	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp	Tyr	Trp	Glu	Asn	Leu	Tyr	Gln
		355					360					365			
Gln	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	Met	Ile	Phe	Phe	Val	Val
					375					380					
Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Ile	Asn	Leu	Ile	Leu	Ala	Val
385					390					395					400
Val	Ala	Met	Ala	Tyr	Glu	Glu	Gln	Asn	Gln	Ala	Asn	Ile	Glu	Glu	Ala
				405					410					415	
Lys	Gln	Lys	Glu	Leu	Glu	Phe	Gln	Gln	Met	Leu	Asp	Arg	Leu	Lys	Lys
			420					425					430		
Glu	Gln	Glu	Glu	Ala	Glu	Ala	Ile	Ala	Ala	Ala	Ala	Ala	Glu	Tyr	Thr
		435					440					445			
Ser	Ile	Arg	Arg	Ser	Arg	Ile	Met	Gly	Leu	Ser	Glu	Ser	Ser	Ser	Glu
	450					455					460				
Thr	Ser	Lys	Leu	Ser	Ser	Lys	Ser	Ala	Lys	Glu	Arg	Arg	Asn	Arg	Arg
465					470					475				480	
Lys	Lys	Lys	Asn	Gln	Lys	Lys	Leu	Ser	Ser	Gly	Glu	Glu	Lys	Gly	Asp
				485					490					495	
Ala	Glu	Lys	Leu	Ser	Lys	Ser	Glu	Ser	Glu	Asp	Ser	Ile	Arg	Arg	Lys
			500					505					510		
Ser	Phe	His	Leu	Gly	Val	Glu	Gly	His	Arg	Arg	Ala	His	Glu	Lys	Arg
		515													

610	615	620
Asn Gly Val Val Ser Leu Val Asp Gly Arg Ser Ala Leu Met Leu Pro		
625	630	635
Tyr Gly Gln Leu Leu Pro Glu Gly Thr Thr Asn Gln Ile His Lys Lys		
	645	650
Arg Arg Cys Ser Ser Tyr Leu Leu Ser Glu Asp Met Leu Asn Asp Pro		
	660	665
Asn Leu Arg Gln Arg Ala Met Ser Arg Ala Ser Ile Leu Thr Asn Thr		
	675	680
Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro Trp Trp Tyr		
	690	695
Arg Phe Ala His Lys Phe Leu Ile Trp Asn Cys Ser Pro Tyr Trp Ile		
705	710	715
Lys Phe Lys Lys Cys Ile Tyr Phe Ile Val Met Asp Pro Phe Val Asp		
	725	730
Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe Met Ala Met		
	740	745
Glu His His Pro Met Thr Glu Glu Phe Lys Asn Val Leu Ala Ile Gly		
	755	760
Asn Leu Val Phe Thr Gly Ile Phe Ala Ala Glu Met Val Leu Lys Leu		
	770	775
Ile Ala Met Asp Pro Tyr Glu Tyr Phe Gln Val Gly Trp Asn Ile Phe		
785	790	795
Asp Ser Leu Ile Val Thr Leu Ser Leu Val Glu Leu Phe Leu Ala Asp		
	805	810
Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe		
	820	825
Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile Lys Ile Ile		
	835	840
Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile		
	850	855
Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Ser		
865	870	875
Tyr Lys Glu Cys Val Cys Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg		
	885	890
Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val Phe Arg Val		
	900	905
Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ala		
	915	920
Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly		
	930	935
Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Ser Ser Phe		
945	950	955
Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn		
	965	970
Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys		
	980	985
Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys		
	995	1000
Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu		
	1010	1015
Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn		
1025	1030	1035
Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp		
	1045	1050
Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro		
		1055

1060					1065					1070					
Ser	Leu	Thr	Val	Thr	Val	Pro	Ile	Ala	Pro	Gly	Glu	Ser	Asp	Leu	Glu
1075					1080					1085					
Asn	Met	Asn	Ala	Glu	Glu	Leu	Ser	Ser	Asp	Ser	Asp	Ser	Glu	Tyr	Ser
1090					1095					1100					
Lys	Val	Arg	Leu	Asn	Arg	Ser	Ser	Ser	Ser	Glu	Cys	Ser	Thr	Val	Asp
1105					1110					1115					
Asn	Pro	Leu	Pro	Gly	Glu	Gly	Glu	Glu	Ala	Glu	Ala	Glu	Pro	Met	Asn
1125					1130					1135					
Ser	Asp	Glu	Pro	Glu	Ala	Cys	Phe	Thr	Asp	Gly	Cys	Val	Arg	Arg	Phe
1140					1145					1150					
Ser	Cys	Cys	Gln	Val	Asn	Ile	Glu	Ser	Gly	Lys	Gly	Lys	Ile	Trp	Trp
1155					1160					1165					
Asn	Ile	Arg	Lys	Thr	Cys	Tyr	Lys	Ile	Val	Glu	His	Ser	Trp	Phe	Glu
1170					1175					1180					
Ser	Phe	Ile	Val	Leu	Met	Ile	Leu	Leu	Ser	Ser	Gly	Ala	Leu	Ala	Phe
1185					1190					1195					
Glu	Asp	Ile	Tyr	Ile	Glu	Arg	Lys	Lys	Thr	Ile	Lys	Ile	Ile	Leu	Glu
1205					1210					1215					
Tyr	Ala	Asp	Lys	Ile	Phe	Thr	Tyr	Ile	Phe	Ile	Leu	Glu	Met	Leu	Leu
1220					1225					1230					
Lys	Trp	Ile	Ala	Tyr	Gly	Tyr	Lys	Thr	Tyr	Phe	Thr	Asn	Ala	Trp	Cys
1235					1240					1245					
Trp	Leu	Asp	Phe	Leu	Ile	Val	Asp	Val	Ser	Leu	Val	Thr	Leu	Val	Ala
1250					1255					1260					
Asn	Thr	Leu	Gly	Tyr	Ser	Asp	Leu	Gly	Pro	Ile	Lys	Ser	Leu	Arg	Thr
1265					1270					1275					
Leu	Arg	Ala	Leu	Arg	Pro	Leu	Arg	Ala	Leu	Ser	Arg	Phe	Glu	Gly	Met
1285					1290					1295					
Arg	Val	Val	Val	Asn	Ala	Leu	Ile	Gly	Ala	Ile	Pro	Ser	Ile	Met	Asn
1300					1305					1310					
Val	Leu	Leu	Val	Cys	Leu	Ile	Phe	Trp	Leu	Ile	Phe	Ser	Ile	Met	Gly
1315					1320					1325					
Val	Asn	Leu	Phe	Ala	Gly	Lys	Phe	Tyr	Glu	Cys	Ile	Asn	Thr	Thr	Asp
1330					1335					1340					
Gly	Ser	Arg	Phe	Pro	Ala	Ser	Gln	Val	Pro	Asn	Arg	Ser	Glu	Cys	Phe
1345					1350					1355					
Ala	Leu	Met	Asn	Val	Ser	Gln	Asn	Val	Arg	Trp	Lys	Asn	Leu	Lys	Val
1365					1370					1375					
Asn	Phe	Asp	Asn	Val	Gly	Leu	Gly	Tyr	Leu	Ser	Leu	Leu	Gln	Val	Ala
1380					1385					1390					
Thr	Phe	Lys	Gly	Trp	Thr	Ile	Ile	Met	Tyr	Ala	Ala	Val	Asp	Ser	Val
1395					1400					1405					
Asn	Val	Asp	Lys	Gln	Pro	Lys	Tyr	Glu	Tyr	Ser	Leu	Tyr	Met	Tyr	Ile
1410					1415					1420					
Tyr	Phe	Val	Val	Phe	Ile	Ile	Phe	Gly	Ser	Phe	Phe	Thr	Leu	Asn	Leu
1425					1430					1435					
Phe	Ile	Gly	Val	Ile	Ile	Asp	Asn	Phe	Asn	Gln	Lys	Lys	Lys	Lys	Leu
1445					1450					1455					
Gly	Gly	Gln	Asp	Ile	Phe	Met	Thr	Glu	Glu	Gln	Lys	Lys	Tyr	Tyr	Asn
1460					1465					1470					
Ala	Met	Lys	Lys	Leu	Gly	Ser	Lys	Lys	Pro	Gln	Lys	Pro	Ile	Pro	Arg
1475					1480					1485					
Pro	Gly	Asn	Lys	Ile	Gln	Gly	Cys	Ile	Phe	Asp	Leu	Val	Thr	Asn	Gln
1490					1495					1500					
Ala	Phe	Asp	Ile	Ser	Ile	Met	Val	Leu	Ile	Cys	Leu	Asn	Met	Val	Thr

1505 1510 1515 1520
 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu
 1525 1530 1535
 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val
 1540 1545 1550
 Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn
 1555 1560 1565
 Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu
 1570 1575 1580
 Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val
 1585 1590 1595 1600
 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala
 1605 1610 1615
 Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala
 1620 1625 1630
 Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala
 1635 1640 1645
 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile
 1650 1655 1660
 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
 1665 1670 1675 1680
 Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile
 1685 1690 1695
 Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly
 1700 1705 1710
 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr
 1715 1720 1725
 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr
 1730 1735 1740
 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr
 1745 1750 1755 1760
 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
 1765 1770 1775
 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
 1780 1785 1790
 Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
 1795 1800 1805
 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
 1810 1815 1820
 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly
 1825 1830 1835 1840
 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe
 1845 1850 1855
 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr
 1860 1865 1870
 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala
 1875 1880 1885
 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile
 1890 1895 1900
 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp
 1905 1910 1915 1920
 Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
 1925 1930 1935
 Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys
 1940 1945 1950
 Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys

1955 1960 1965
 Gly Lys Asp Ser Lys Glu Ser Lys Lys
 1970 1975

<210> 5
 <211> 1977
 <212> PRT
 <213> Homo Sapien

<400> 5
 Met Ala Met Leu Pro Pro Gly Pro Gln Ser Phe Val His Phe Thr
 1 5 10 15
 Lys Gln Ser Leu Ala Leu Ile Glu Gln Arg Ile Ala Glu Arg Lys Ser
 20 25 30
 Lys Glu Pro Lys Glu Glu Lys Lys Asp Asp Asp Glu Glu Ala Pro Lys
 35 40 45
 Pro Ser Ser Asp Leu Glu Ala Gly Lys Gln Leu Pro Phe Ile Tyr Gly
 50 55 60
 Asp Ile Pro Pro Gly Met Val Ser Glu Pro Leu Glu Asp Leu Asp Pro
 65 70 75 80
 Tyr Tyr Ala Asp Lys Lys Thr Phe Ile Val Leu Asn Lys Gly Lys Thr
 85 90 95
 Ile Phe Arg Phe Asn Ala Thr Pro Ala Leu Tyr Met Leu Ser Pro Phe
 100 105 110
 Ser Pro Leu Arg Arg Ile Ser Ile Lys Ile Leu Val His Ser Leu Phe
 115 120 125
 Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Ile Phe Met Thr
 130 135 140
 Met Asn Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr Phe Thr
 145 150 155 160
 Gly Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile Leu Ala Arg Gly Phe
 165 170 175
 Cys Val Gly Glu Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp Leu Asp
 180 185 190
 Phe Val Val Ile Val Phe Ala Tyr Leu Thr Glu Phe Val Asn Leu Gly
 195 200 205
 Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu Lys Thr
 210 215 220
 Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu Ile Gln
 225 230 235 240
 Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe Cys Leu
 245 250 255
 Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn Leu Lys
 260 265 270
 His Lys Cys Phe Arg Asn Ser Leu Glu Asn Asn Glu Thr Leu Glu Ser
 275 280 285
 Ile Met Asn Thr Leu Glu Ser Glu Glu Asp Phe Arg Lys Tyr Phe Tyr
 290 295 300
 Tyr Leu Glu Gly Ser Lys Asp Ala Leu Leu Cys Gly Phe Ser Thr Asp
 305 310 315 320
 Ser Gly Gln Cys Pro Glu Gly Tyr Thr Cys Val Lys Ile Gly Arg Asn
 325 330 335
 Pro Asp Tyr Gly Tyr Thr Ser Phe Asp Thr Phe Ser Trp Ala Phe Leu
 340 345 350

Ala	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp	Tyr	Trp	Glu	Asn	Leu	Tyr	Gln		
		355					360					365					
Gln	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	Met	Ile	Phe	Phe	Val	Val		
	370					375					380						
Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Ile	Asn	Leu	Ile	Leu	Ala	Val		
385					390					395					400		
Val	Ala	Met	Ala	Tyr	Glu	Glu	Gln	Asn	Gln	Ala	Asn	Ile	Glu	Glu	Ala		
			405						410						415		
Lys	Gln	Lys	Glu	Leu	Glu	Phe	Gln	Gln	Met	Leu	Asp	Arg	Leu	Lys	Lys		
			420					425					430				
Glu	Gln	Glu	Glu	Ala	Glu	Ala	Ile	Ala	Ala	Ala	Ala	Ala	Glu	Tyr	Thr		
	435					440						445					
Ser	Ile	Arg	Arg	Ser	Arg	Ile	Met	Gly	Leu	Ser	Glu	Ser	Ser	Ser	Glu		
	450					455					460						
Thr	Ser	Lys	Leu	Ser	Ser	Lys	Ser	Ala	Lys	Glu	Arg	Arg	Asn	Arg	Arg		
465					470					475					480		
Lys	Lys	Lys	Asn	Gln	Lys	Lys	Leu	Ser	Ser	Gly	Glu	Glu	Lys	Gly	Asp		
			485						490					495			
Ala	Glu	Lys	Leu	Ser	Lys	Ser	Glu	Ser	Glu	Asp	Ser	Ile	Arg	Arg	Lys		
		500						505					510				
Ser	Phe	His	Leu	Gly	Val	Glu	Gly	His	Arg	Arg	Ala	His	Glu	Lys	Arg		
	515					520						525					
Leu	Ser	Thr	Pro	Asn	Gln	Ser	Pro	Leu	Ser	Ile	Arg	Gly	Ser	Leu	Phe		
	530				535						540						
Ser	Ala	Arg	Arg	Ser	Ser	Arg	Thr	Ser	Leu	Phe	Ser	Phe	Lys	Gly	Arg		
545					550					555					560		
Gly	Arg	Asp	Ile	Gly	Ser	Glu	Thr	Glu	Phe	Ala	Asp	Asp	Glu	His	Ser		
			565					570						575			
Ile	Phe	Gly	Asp	Asn	Glu	Ser	Arg	Arg	Gly	Ser	Leu	Phe	Val	Pro	His		
		580						585					590				
Arg	Pro	Gln	Glu	Arg	Arg	Ser	Ser	Asn	Ile	Ser	Gln	Ala	Ser	Arg	Ser		
	595					600						605					
Pro	Pro	Met	Leu	Pro	Val	Asn	Gly	Lys	Met	His	Ser	Ala	Val	Asp	Cys		
	610				615						620						
Asn	Gly	Val	Val	Ser	Leu	Val	Asp	Gly	Arg	Ser	Ala	Leu	Met	Leu	Pro		
625					630					635					640		
Asn	Gly	Gln	Leu	Leu	Pro	Glu	Gly	Thr	Thr	Asn	Gln	Ile	His	Arg	Lys		
			645					650						655			
Arg	Arg	Cys	Ser	Ser	Tyr	Leu	Leu	Ser	Glu	Asp	Met	Leu	Asn	Asp	Pro		
		660						665					670				
Asn	Leu	Arg	Gln	Arg	Ala	Met	Ser	Arg	Ala	Ser	Ile	Leu	Thr	Asn	Thr		
	675					680						685					
Val	Glu	Glu	Leu	Glu	Glu	Ser	Arg	Gln	Lys	Cys	Pro	Pro	Trp	Trp	Tyr		
	690				695						700						
Arg	Phe	Ala	His	Lys	Phe	Leu	Ile	Trp	Asn	Cys	Ser	Pro	Tyr	Trp	Ile		
705					710					715					720		
Lys	Phe	Lys	Lys	Cys	Ile	Tyr	Phe	Ile	Val	Met	Asp	Pro	Phe	Val	Asp		
			725					730						735			
Leu	Ala	Ile	Thr	Ile	Cys	Ile	Val	Leu	Asn	Thr	Leu	Phe	Met	Ala	Met		
	740							745					750				
Glu	His	His	Pro	Met	Thr	Glu	Glu	Phe	Lys	Asn	Val	Leu	Ala	Ile	Gly		
	755					760						765					
Asn	Leu	Val	Phe	Thr	Gly	Ile	Phe	Ala	Ala	Glu	Met	Val	Leu	Lys	Leu		
	770				775					780							
Ile	Ala	Met	Asp	Pro	Tyr	Glu	Tyr	Phe	Gln	Val	Gly	Trp	Asn	Ile	Phe		
785					790					795					800		

Asp	Ser	Leu	Ile	Val	Thr	Leu	Ser	Leu	Val	Glu	Leu	Phe	Leu	Ala	Asp	805	810	815
Val	Glu	Gly	Leu	Ser	Val	Leu	Arg	Ser	Phe	Arg	Leu	Leu	Arg	Val	Phe	820	825	830
Lys	Leu	Ala	Lys	Ser	Trp	Pro	Thr	Leu	Asn	Met	Leu	Ile	Lys	Ile	Ile	835	840	845
Gly	Asn	Ser	Val	Gly	Ala	Leu	Gly	Asn	Leu	Thr	Leu	Val	Leu	Ala	Ile	850	855	860
Ile	Val	Phe	Ile	Phe	Ala	Val	Val	Gly	Met	Gln	Leu	Phe	Gly	Lys	Ser	865	870	875
Tyr	Lys	Glu	Cys	Val	Cys	Lys	Ile	Asn	Asp	Asp	Cys	Thr	Leu	Pro	Arg	885	890	895
Trp	His	Met	Asn	Asp	Phe	Phe	His	Ser	Phe	Leu	Ile	Val	Phe	Arg	Val	900	905	910
Leu	Cys	Gly	Glu	Trp	Ile	Glu	Thr	Met	Trp	Asp	Cys	Met	Glu	Val	Ala	915	920	925
Gly	Gln	Ala	Met	Cys	Leu	Ile	Val	Tyr	Met	Met	Val	Met	Val	Ile	Gly	930	935	940
Asn	Leu	Val	Val	Leu	Asn	Leu	Phe	Leu	Ala	Leu	Leu	Leu	Ser	Ser	Phe	945	950	955
Ser	Ser	Asp	Asn	Leu	Thr	Ala	Ile	Glu	Glu	Asp	Pro	Asp	Ala	Asn	Asn	965	970	975
Leu	Gln	Ile	Ala	Val	Thr	Arg	Ile	Lys	Lys	Gly	Ile	Asn	Tyr	Val	Lys	980	985	990
Gln	Thr	Leu	Arg	Glu	Phe	Ile	Leu	Lys	Ala	Phe	Ser	Lys	Lys	Pro	Lys	995	1000	1005
Ile	Ser	Arg	Glu	Ile	Arg	Gln	Ala	Glu	Asp	Leu	Asn	Thr	Lys	Lys	Glu	1010	1015	1020
Asn	Tyr	Ile	Ser	Asn	His	Thr	Leu	Ala	Glu	Met	Ser	Lys	Gly	His	Asn	1025	1030	1035
Phe	Leu	Lys	Glu	Lys	Asp	Lys	Ile	Ser	Gly	Phe	Gly	Ser	Ser	Val	Asp	1045	1050	1055
Lys	His	Leu	Met	Glu	Asp	Ser	Asp	Gly	Gln	Ser	Phe	Ile	His	Asn	Pro	1060	1065	1070
Ser	Leu	Thr	Val	Thr	Val	Pro	Ile	Ala	Pro	Gly	Glu	Ser	Asp	Leu	Glu	1075	1080	1085
Asn	Met	Asn	Ala	Glu	Glu	Leu	Ser	Ser	Asp	Ser	Asp	Ser	Glu	Tyr	Ser	1090	1095	1100
Lys	Val	Arg	Leu	Asn	Arg	Ser	Ser	Ser	Ser	Glu	Cys	Ser	Thr	Val	Asp	1105	1110	1115
Asn	Pro	Leu	Pro	Gly	Glu	Gly	Glu	Glu	Ala	Glu	Ala	Glu	Pro	Met	Asn	1125	1130	1135
Ser	Asp	Glu	Pro	Glu	Ala	Cys	Phe	Thr	Asp	Gly	Cys	Val	Arg	Arg	Phe	1140	1145	1150
Ser	Cys	Cys	Gln	Val	Asn	Ile	Glu	Ser	Gly	Lys	Gly	Lys	Ile	Trp	Trp	1155	1160	1165
Asn	Ile	Arg	Lys	Thr	Cys	Tyr	Lys	Ile	Val	Glu	His	Ser	Trp	Phe	Glu	1170	1175	1180
Ser	Phe	Ile	Val	Leu	Met	Ile	Leu	Leu	Ser	Ser	Gly	Ala	Leu	Ala	Phe	1185	1190	1195
Glu	Asp	Ile	Tyr	Ile	Glu	Arg	Lys	Lys	Thr	Ile	Lys	Ile	Ile	Leu	Glu	1205	1210	1215
Tyr	Ala	Asp	Lys	Ile	Phe	Thr	Tyr	Ile	Phe	Ile	Leu	Glu	Met	Leu	Leu	1220	1225	1230
Lys	Trp	Ile	Ala	Tyr	Gly	Tyr	Lys	Thr	Tyr	Phe	Thr	Asn	Ala	Trp	Cys	1235	1240	1245

Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala
 1250 1255 1260
 Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr
 1265 1270 1275 1280
 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met
 1285 1290 1295
 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn
 1300 1305 1310
 Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly
 1315 1320 1325
 Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp
 1330 1335 1340
 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe
 1345 1350 1355 1360
 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val
 1365 1370 1375
 Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala
 1380 1385 1390
 Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val
 1395 1400 1405
 Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile
 1410 1415 1420
 Tyr Phe Val Val Phe Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu
 1425 1430 1435 1440
 Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys Leu
 1445 1450 1455
 Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn
 1460 1465 1470
 Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg
 1475 1480 1485
 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln
 1490 1495 1500
 Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr
 1505 1510 1515 1520
 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu
 1525 1530 1535
 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val
 1540 1545 1550
 Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn
 1555 1560 1565
 Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu
 1570 1575 1580
 Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val
 1585 1590 1595 1600
 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala
 1605 1610 1615
 Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala
 1620 1625 1630
 Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala
 1635 1640 1645
 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile
 1650 1655 1660
 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
 1665 1670 1675 1680
 Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile
 1685 1690 1695

Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly
 1700 1705 1710
 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr
 1715 1720 1725
 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr
 1730 1735 1740
 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr
 1745 1750 1755 1760
 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
 1765 1770 1775
 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
 1780 1785 1790
 Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
 1795 1800 1805
 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
 1810 1815 1820
 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly
 1825 1830 1835 1840
 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe
 1845 1850 1855
 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr
 1860 1865 1870
 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala
 1875 1880 1885
 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile
 1890 1895 1900
 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp
 1905 1910 1915 1920
 Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
 1925 1930 1935
 Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys
 1940 1945 1950
 Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys
 1955 1960 1965
 Gly Lys Asp Ser Lys Glu Ser Lys Lys
 1970 1975

<210> 6
 <211> 1977
 <212> PRT
 <213> Homo Sapien

<400> 6
 Met Ala Met Leu Pro Pro Gly Pro Gln Ser Phe Val His Phe Thr
 1 5 10 15
 Lys Gln Ser Leu Ala Leu Ile Glu Gln Arg Ile Ala Glu Arg Lys Ser
 20 25 30
 Lys Glu Pro Lys Glu Glu Lys Lys Asp Asp Asp Glu Glu Ala Pro Lys
 35 40 45
 Pro Ser Ser Asp Leu Glu Ala Gly Lys Gln Leu Pro Phe Ile Tyr Gly
 50 55 60
 Asp Ile Pro Pro Gly Met Val Ser Glu Pro Leu Glu Asp Leu Asp Pro
 65 70 75 80
 Tyr Tyr Ala Asp Lys Lys Thr Phe Ile Val Leu Asn Lys Gly Lys Thr

				85					90					95		
Ile	Phe	Arg	Phe	Asn	Ala	Thr	Pro	Ala	Leu	Tyr	Met	Leu	Ser	Pro	Phe	
			100					105					110			
Ser	Pro	Leu	Arg	Arg	Ile	Ser	Ile	Lys	Ile	Leu	Val	His	Ser	Leu	Phe	
			115				120					125				
Ser	Met	Leu	Ile	Met	Cys	Thr	Ile	Leu	Thr	Asn	Cys	Ile	Phe	Met	Thr	
			130			135					140					
Met	Asn	Asn	Pro	Pro	Asp	Trp	Thr	Lys	Asn	Val	Glu	Tyr	Thr	Phe	Thr	
145					150					155						
Gly	Ile	Tyr	Thr	Phe	Glu	Ser	Leu	Val	Lys	Ile	Leu	Ala	Arg	Gly	Phe	
				165						170				175		
Cys	Val	Gly	Glu	Phe	Thr	Phe	Leu	Arg	Asp	Pro	Trp	Asn	Trp	Leu	Asp	
			180					185					190			
Phe	Val	Val	Ile	Val	Phe	Ala	Tyr	Leu	Thr	Glu	Phe	Val	Asn	Leu	Gly	
			195				200					205				
Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu	Arg	Ala	Leu	Lys	Thr	
						215					220					
Ile	Ser	Val	Ile	Pro	Gly	Leu	Lys	Thr	Ile	Val	Gly	Ala	Leu	Ile	Gln	
225					230					235					240	
Ser	Val	Lys	Lys	Leu	Ser	Asp	Val	Met	Ile	Leu	Thr	Val	Phe	Cys	Leu	
				245					250					255		
Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	Met	Gly	Asn	Leu	Lys	
			260					265					270			
His	Lys	Cys	Phe	Arg	Asn	Ser	Leu	Glu	Asn	Asn	Glu	Thr	Glu	Glu	Ser	
			275				280					285				
Ile	Met	Asn	Thr	Leu	Glu	Ser	Glu	Glu	Asp	Phe	Arg	Lys	Tyr	Phe	Tyr	
						295					300					
Tyr	Leu	Glu	Gly	Ser	Lys	Asp	Ala	Leu	Leu	Cys	Gly	Phe	Ser	Thr	Asp	
305					310					315					320	
Ser	Gly	Gln	Cys	Pro	Glu	Gly	Tyr	Thr	Cys	Val	Lys	Ile	Gly	Arg	Asn	
				325					330					335		
Pro	Asp	Tyr	Gly	Tyr	Thr	Ser	Phe	Asp	Thr	Phe	Ser	Trp	Ala	Phe	Leu	
			340					345					350			
Ala	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp	Tyr	Trp	Glu	Asn	Leu	Tyr	Gln	
			355				360					365				
Gln	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	Met	Ile	Phe	Phe	Val	Val	
						375					380					
Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Ile	Asn	Leu	Ile	Leu	Ala	Val	
385					390					395					400	
Val	Ala	Met	Ala	Tyr	Glu	Glu	Gln	Asn	Gln	Ala	Asn	Ile	Glu	Glu	Ala	
				405					410					415		
Lys	Gln	Lys	Glu	Leu	Glu	Phe	Gln	Gln	Met	Leu	Asp	Arg	Leu	Lys	Lys	
			420					425								

530		535		540
Ser Ala Arg Arg Ser Ser Arg Thr Ser Leu Phe Ser Phe Lys Gly Arg				
545		550		555
Gly Arg Asp Ile Gly Ser Glu Thr Glu Phe Ala Asp Asp Glu His Ser				
	565		570	
Ile Phe Gly Asp Asn Glu Ser Arg Arg Gly Ser Leu Phe Val Pro His				
	580		585	
Arg Pro Gln Glu Arg Arg Ser Ser Asn Ile Ser Gln Ala Ser Arg Ser				
	595		600	
Pro Pro Met Leu Pro Val Asn Gly Lys Met His Ser Ala Val Asp Cys				
	610		615	
Asn Gly Val Val Ser Leu Val Asp Gly Arg Ser Ala Leu Met Leu Pro				
625		630		635
Asn Gly Gln Leu Leu Pro Glu Gly Thr Thr Asn Gln Ile His Lys Lys				
	645		650	
Arg Arg Cys Ser Ser Tyr Leu Leu Ser Glu Asp Met Leu Asn Asp Pro				
	660		665	
Asn Leu Arg Gln Arg Ala Met Ser Arg Ala Ser Ile Leu Thr Asn Thr				
	675		680	
Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro Trp Trp Tyr				
	690		695	
Arg Phe Ala His Lys Phe Leu Ile Trp Asn Cys Ser Pro Tyr Trp Ile				
705		710		715
Lys Phe Lys Lys Cys Ile Tyr Phe Ile Val Met Asp Pro Phe Val Asp				
	725		730	
Leu Ala Val Thr Ile Cys Ile Val Leu Asn Thr Leu Phe Met Ala Met				
	740		745	
Glu His His Pro Met Thr Glu Glu Phe Lys Asn Val Leu Ala Ile Gly				
	755		760	
Asn Leu Val Phe Thr Gly Ile Phe Ala Ala Glu Met Val Leu Lys Leu				
	770		775	
Ile Ala Met Asp Pro Tyr Glu Tyr Phe Gln Val Gly Trp Asn Ile Phe				
785		790		795
Asp Ser Leu Ile Val Thr Leu Ser Leu Val Glu Leu Phe Leu Ala Asp				
	805		810	
Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe				
	820		825	
Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile Lys Ile Ile				
	835		840	
Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile				
	850		855	
Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Ser				
865		870		875
Tyr Lys Glu Cys Val Cys Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg				
	885		890	
Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val Phe Arg Val				
	900		905	
Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ala				
	915		920	
Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly				
	930		935	
Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe				
945		950		955
Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn				
	965		970	
Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys				

980										985					990					
Gln	Thr	Leu	Arg	Glu	Phe	Ile	Leu	Lys	Ala	Phe	Ser	Lys	Lys	Pro	Lys					
995										1000					1005					
Ile	Ser	Arg	Glu	Ile	Arg	Gln	Ala	Glu	Asp	Leu	Asn	Thr	Lys	Lys	Glu					
1010										1015					1020					
Asn	Tyr	Ile	Ser	Asn	His	Thr	Leu	Ala	Glu	Met	Ser	Lys	Gly	His	Asn					
1025	1030										1035					1040				
Phe	Leu	Lys	Glu	Lys	Asp	Lys	Ile	Ser	Gly	Phe	Gly	Ser	Ser	Val	Asp					
1045										1050					1055					
Lys	His	Leu	Met	Glu	Asp	Ser	Asp	Gly	Gln	Ser	Phe	Ile	His	Asn	Pro					
1060										1065					1070					
Ser	Leu	Thr	Val	Thr	Val	Pro	Ile	Ala	Pro	Gly	Glu	Ser	Asp	Leu	Glu					
1075										1080					1085					
Asn	Met	Asn	Ala	Glu	Glu	Leu	Ser	Ser	Asp	Ser	Asp	Ser	Glu	Tyr	Ser					
1090	1095										1100									
Lys	Val	Arg	Leu	Asn	Arg	Ser	Ser	Ser	Ser	Glu	Cys	Ser	Thr	Val	Asp					
1105	1110										1115					1120				
Asn	Pro	Leu	Pro	Gly	Glu	Gly	Glu	Glu	Ala	Glu	Ala	Glu	Pro	Met	Asn					
1125										1130					1135					
Ser	Asp	Glu	Pro	Glu	Ala	Cys	Phe	Thr	Asp	Gly	Cys	Val	Arg	Arg	Phe					
1140										1145					1150					
Ser	Cys	Cys	Gln	Val	Asn	Ile	Glu	Ser	Gly	Lys	Gly	Lys	Ile	Trp	Trp					
1155										1160					1165					
Asn	Ile	Arg	Lys	Thr	Cys	Tyr	Lys	Ile	Val	Glu	His	Ser	Trp	Phe	Glu					
1170	1175										1180									
Ser	Phe	Ile	Val	Leu	Met	Ile	Leu	Leu	Ser	Ser	Gly	Ala	Leu	Ala	Phe					
1185	1190										1195					1200				
Glu	Asp	Ile	Tyr	Ile	Glu	Arg	Lys	Lys	Thr	Ile	Lys	Ile	Ile	Leu	Glu					
1205										1210					1215					
Tyr	Ala	Asp	Lys	Ile	Phe	Thr	Tyr	Ile	Phe	Ile	Leu	Glu	Met	Leu	Leu					
1220										1225					1230					
Lys	Trp	Ile	Ala	Tyr	Gly	Tyr	Lys	Thr	Tyr	Phe	Thr	Asn	Ala	Trp	Cys					
1235										1240					1245					
Trp	Leu	Asp	Phe	Leu	Ile	Val	Asp	Val	Ser	Leu	Val	Thr	Leu	Val	Ala					
1250	1255										1260									
Asn	Thr	Leu	Gly	Tyr	Ser	Asp	Leu	Gly	Pro	Ile	Lys	Ser	Leu	Arg	Thr					
1265	1270										1275					1280				
Leu	Arg	Ala	Leu	Arg	Pro	Leu	Arg	Ala	Leu	Ser	Arg	Phe	Glu	Gly	Met					
1285										1290					1295					
Arg	Val	Val	Val	Asn	Ala	Leu	Ile	Gly	Ala	Ile	Pro	Ser	Ile	Met	Asn					
1300										1305					1310					
Val	Leu	Leu	Val	Cys	Leu	Ile	Phe	Trp	Leu	Ile	Phe	Ser	Ile	Met	Gly					
1315										1320					1325					
Val	Asn	Leu	Phe	Ala	Gly	Lys	Phe	Tyr	Glu	Cys	Ile	Asn	Thr	Thr	Asp					
1330										1335					1340					
Gly	Ser	Arg	Phe	Pro	Ala	Ser	Gln	Val	Pro	Asn	Arg	Ser	Glu	Cys	Phe					
1345	1350										1355					1360				
Ala	Leu	Met	Asn	Val	Ser	Gln	Asn	Val	Arg	Trp	Lys	Asn	Leu	Lys	Val					
1365										1370					1375					
Asn	Phe	Asp	Asn	Val	Gly	Leu	Gly	Tyr	Leu	Ser	Leu	Leu	Gln	Val	Ala					
1380										1385					1390					
Thr	Phe	Lys	Gly	Trp	Thr	Ile	Ile	Met	Tyr	Ala	Ala	Val	Asp	Ser	Val					
1395										1400					1405					
Asn	Val	Asp	Lys	Gln	Pro	Lys	Tyr	Glu	Tyr	Ser	Leu	Tyr	Met	Tyr	Ile					
1410	1415										1420									
Tyr	Phe	Val	Val	Phe	Ile	Ile	Phe	Gly	Ser	Phe	Phe	Thr	Leu	Asn	Leu					

1425		1430		1435		1440
Phe Ile Gly Val	Ile Ile Asp Asn Phe	Asn Gln Gln Lys Lys Lys Leu				
	1445	1450		1455		
Gly Gly Gln Asp	Ile Phe Met Thr	Glu Glu Gln Lys Lys Tyr Tyr Asn				
	1460	1465		1470		
Ala Met Lys Lys	Leu Gly Ser Lys Lys Pro Gln Lys	Pro Ile Pro Arg				
	1475	1480		1485		
Pro Gly Asn Lys	Ile Gln Gly Cys Ile Phe Asp	Leu Val Thr Asn Gln				
	1490	1495		1500		
Ala Phe Asp Ile	Ser Ile Met Val Leu Ile Cys Leu	Asn Met Val Thr				
1505	1510	1515		1520		
Met Met Val Glu	Lys Glu Gly Gln Ser Gln His Met Thr	Glu Val Leu				
	1525	1530		1535		
Tyr Trp Ile Asn	Val Val Phe Ile Ile Leu Phe Thr	Gly Glu Cys Val				
	1540	1545		1550		
Leu Lys Leu Ile	Ser Leu Arg His Tyr Tyr Phe Thr	Val Gly Trp Asn				
	1555	1560		1565		
Ile Phe Asp Phe	Val Val Val Ile Ile Ser Ile	Val Gly Met Phe Leu				
	1570	1575		1580		
Ala Asp Leu Ile	Glu Thr Tyr Phe Val Ser Pro Thr	Leu Phe Arg Val				
1585	1590	1595		1600		
Ile Arg Leu Ala	Arg Ile Gly Arg Ile Leu Arg	Leu Val Lys Gly Ala				
	1605	1610		1615		
Lys Gly Ile Arg	Thr Leu Leu Phe Ala Leu Met Met	Ser Leu Pro Ala				
	1620	1625		1630		
Leu Phe Asn Ile	Gly Leu Leu Leu Phe Leu Val Met	Phe Ile Tyr Ala				
	1635	1640		1645		
Ile Phe Gly Met	Ser Asn Phe Ala Tyr Val Lys Lys	Glu Asp Gly Ile				
	1650	1655		1660		
Asn Asp Met Phe	Asn Phe Glu Thr Phe Gly Asn Ser	Met Ile Cys Leu				
1665	1670	1675		1680		
Phe Gln Ile Thr	Thr Ser Ala Gly Trp Asp Gly	Leu Leu Ala Pro Ile				
	1685	1690		1695		
Leu Asn Ser Lys	Pro Pro Asp Cys Asp Pro Lys Lys	Val His Pro Gly				
	1700	1705		1710		
Ser Ser Val Glu	Gly Asp Cys Gly Asn Pro Ser Val	Gly Ile Phe Tyr				
	1715	1720		1725		
Phe Val Ser Tyr	Ile Ile Ile Ser Phe Leu Val Val	Val Asn Met Tyr				
	1730	1735		1740		
Ile Ala Val Ile	Leu Glu Asn Phe Ser Val Ala Thr	Glu Glu Ser Thr				
1745	1750	1755		1760		
Glu Pro Leu Ser	Glu Asp Asp Phe Glu Met Phe Tyr	Glu Val Trp Glu				
	1765	1770		1775		
Lys Phe Asp Pro	Asp Ala Thr Gln Phe Ile Glu Phe	Ser Lys Leu Ser				
	1780	1785		1790		
Asp Phe Ala Ala	Ala Leu Asp Pro Pro Leu Leu Ile	Ala Lys Pro Asn				
	1795	1800		1805		
Lys Val Gln Leu	Ile Ala Met Asp Leu Pro Met Val	Ser Gly Asp Arg				
	1810	1815		1820		
Ile His Cys Leu	Asp Ile Leu Phe Ala Phe Thr Lys	Arg Val Leu Gly				
1825	1830	1835		1840		
Glu Ser Gly Glu	Met Asp Ser Leu Arg Ser Gln Met	Glu Glu Arg Phe				
	1845	1850		1855		
Met Ser Ala Asn	Pro Ser Lys Val Ser Tyr Glu Pro	Ile Thr Thr Thr				
	1860	1865		1870		
Leu Lys Arg Lys	Gln Glu Asp Val Ser Ala Thr Val	Ile Gln Arg Ala				

1875	1880	1885
Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile		
1890	1895	1900
Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp		
1905	1910	1915
Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp		
	1925	1930
Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys		
	1940	1945
Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys		
	1955	1960
Gly Lys Asp Ser Lys Glu Ser Lys Lys		1965
1970	1975	

<210> 7
 <211> 1977
 <212> PRT
 <213> Homo Sapien

<400> 7

Met Ala Met Leu Pro Pro Gly Pro Gln Ser Phe Val His Phe Thr	
1	5
Lys Gln Ser Leu Ala Leu Ile Glu Gln Arg Ile Ala Glu Arg Lys Ser	10
	20
Lys Glu Pro Lys Glu Glu Lys Lys Asp Asp Asp Glu Glu Ala Pro Lys	25
	30
Pro Ser Ser Asp Leu Glu Ala Gly Lys Gln Leu Pro Phe Ile Tyr Gly	35
	40
Asp Ile Pro Pro Gly Met Val Ser Glu Pro Leu Glu Asp Leu Asp Pro	45
65	50
Tyr Tyr Ala Asp Lys Lys Thr Phe Ile Val Leu Asn Lys Gly Lys Thr	55
	60
Ile Phe Arg Phe Asn Ala Thr Pro Ala Leu Tyr Met Leu Ser Pro Phe	65
	70
Ser Pro Leu Arg Arg Ile Ser Ile Lys Ile Leu Val His Ser Leu Phe	75
	80
Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Ile Phe Met Thr	85
	90
Met Asn Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr Phe Thr	95
145	100
Gly Ile Tyr Thr Phe Glu Ser Leu Val Lys Ile Leu Ala Arg Gly Phe	105
	110
Cys Val Gly Glu Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp Leu Asp	115
	120
Phe Val Val Ile Val Phe Ala Tyr Leu Thr Glu Phe Val Asn Leu Gly	125
	130
Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu Lys Thr	135
	140
Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu Ile Gln	145
225	150
Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe Cys Leu	155
	160
Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn Leu Lys	165
	170
	175
	180
	185
	190
	195
	200
	205
	210
	215
	220
	225
	230
	235
	240
	245
	250
	255
	260
	265
	270

His	Lys	Cys	Phe	Arg	Asn	Ser	Leu	Glu	Asn	Asn	Glu	Thr	Leu	Glu	Ser		
		275					280					285					
Ile	Met	Asn	Thr	Leu	Glu	Ser	Glu	Glu	Asp	Phe	Arg	Lys	Tyr	Phe	Tyr		
	290					295				300							
Tyr	Leu	Glu	Gly	Ser	Lys	Asp	Ala	Leu	Leu	Cys	Gly	Phe	Ser	Thr	Asp		
305					310					315					320		
Ser	Gly	Gln	Cys	Pro	Glu	Gly	Tyr	Thr	Cys	Val	Lys	Ile	Gly	Arg	Asn		
				325					330					335			
Pro	Asp	Tyr	Gly	Tyr	Thr	Ser	Phe	Asp	Thr	Phe	Ser	Trp	Ala	Phe	Leu		
		340						345					350				
Ala	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp	Tyr	Trp	Glu	Asn	Leu	Tyr	Gln		
	355						360					365					
Gln	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	Met	Ile	Phe	Phe	Val	Val		
	370					375					380						
Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Ile	Asn	Leu	Ile	Leu	Ala	Val		
385					390					395					400		
Val	Ala	Met	Ala	Tyr	Glu	Glu	Gln	Asn	Gln	Ala	Asn	Ile	Glu	Glu	Ala		
				405					410					415			
Lys	Gln	Lys	Glu	Leu	Glu	Phe	Gln	Gln	Met	Leu	Asp	Arg	Leu	Lys	Lys		
			420					425					430				
Glu	Gln	Glu	Glu	Ala	Glu	Ala	Ile	Ala	Ala	Ala	Ala	Ala	Glu	Tyr	Thr		
	435						440					445					
Ser	Ile	Arg	Arg	Ser	Arg	Ile	Met	Gly	Leu	Ser	Glu	Ser	Ser	Ser	Glu		
	450					455					460						
Thr	Ser	Lys	Leu	Ser	Ser	Lys	Ser	Ala	Lys	Glu	Arg	Arg	Asn	Arg	Arg		
465					470					475					480		
Lys	Lys	Lys	Asn	Gln	Lys	Lys	Leu	Ser	Ser	Gly	Glu	Glu	Lys	Gly	Asp		
			485						490					495			
Ala	Glu	Lys	Leu	Ser	Lys	Ser	Glu	Ser	Glu	Asp	Ser	Ile	Arg	Arg	Lys		
			500					505					510				
Ser	Phe	His	Leu	Gly	Val	Glu	Gly	His	Arg	Arg	Ala	His	Glu	Lys	Arg		
	515						520					525					
Leu	Ser	Thr	Pro	Asn	Gln	Ser	Pro	Leu	Ser	Ile	Arg	Gly	Ser	Leu	Phe		
	530					535				540							
Ser	Ala	Arg	Arg	Ser	Ser	Arg	Thr	Ser	Leu	Phe	Ser	Phe	Lys	Gly	Arg		
545					550					555					560		
Gly	Arg	Asp	Ile	Gly	Ser	Glu	Thr	Glu	Phe	Ala	Asp	Asp	Glu	His	Ser		
				565					570					575			
Ile	Phe	Gly	Asp	Asn	Glu	Ser	Arg	Arg	Gly	Ser	Leu	Phe	Val	Pro	His		
	580							585					590				
Arg	Pro	Gln	Glu	Arg	Arg	Ser	Ser	Asn	Ile	Ser	Gln	Ala	Ser	Arg	Ser		
	595						600					605					
Pro	Pro	Met	Leu	Pro	Val	Asn	Gly	Lys	Met	His	Ser	Ala	Val	Asp	Cys		
	610					615					620						
Asn	Gly	Val	Val	Ser	Leu	Val	Asp	Gly	Arg	Ser	Ala	Leu	Met	Leu	Pro		
625					630					635					640		
Asn	Gly	Gln	Leu	Leu	Pro	Glu	Gly	Thr	Thr	Asn	Gln	Ile	His	Lys	Lys		
				645					650					655			
Arg	Arg	Cys	Ser	Ser	Tyr	Leu	Leu	Ser	Glu	Asp	Met	Leu	Asn	Asp	Pro		
			660					665					670				
Asn	Leu	Arg	Gln	Arg	Ala	Met	Ser	Arg	Ala	Ser	Ile	Leu	Thr	Asn	Thr		
	675						680					685					
Val	Glu	Glu	Leu	Glu	Glu	Ser	Arg	Gln	Lys	Cys	Pro	Pro	Trp	Trp	Tyr		
	690					695					700						
Arg	Phe	Ala	His	Lys	Phe	Leu	Ile	Trp	Asn	Cys	Ser	Pro	Tyr	Trp	Ile		
705					710					715					720		

Lys Phe Lys Lys Cys Ile Tyr Phe Ile Val Met Asp Pro Phe Val Asp
 725 730 735
 Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe Met Ala Met
 740 745 750
 Glu His His Pro Met Thr Glu Glu Phe Lys Asn Val Leu Ala Ile Gly
 755 760 765
 Asn Leu Val Phe Thr Gly Ile Phe Ala Ala Glu Met Val Leu Lys Leu
 770 775 780
 Ile Ala Met Asp Pro Tyr Glu Tyr Phe Gln Val Gly Trp Asn Ile Phe
 785 790 795 800
 Asp Ser Leu Ile Val Thr Leu Ser Leu Val Glu Leu Phe Leu Ala Asp
 805 810 815
 Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu Arg Val Phe
 820 825 830
 Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile Lys Ile Ile
 835 840 845
 Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val Leu Ala Ile
 850 855 860
 Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe Gly Lys Ser
 865 870 875 880
 Tyr Lys Glu Cys Val Cys Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg
 885 890 895 900
 Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val Phe Arg Val
 905 910
 Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met Glu Val Ala
 915 920 925
 Gly Gln Ala Met Cys Leu Ile Val Tyr Met Met Val Met Val Ile Gly
 930 935 940
 Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Ser Ser Phe
 945 950 955 960
 Ser Ser Asp Asn Leu Thr Ala Ile Glu Glu Asp Pro Asp Ala Asn Asn
 965 970 975
 Leu Gln Ile Ala Val Thr Arg Ile Lys Lys Gly Ile Asn Tyr Val Lys
 980 985 990
 Gln Thr Leu Arg Glu Phe Ile Leu Lys Ala Phe Ser Lys Lys Pro Lys
 995 1000 1005
 Ile Ser Arg Glu Ile Arg Gln Ala Glu Asp Leu Asn Thr Lys Lys Glu
 1010 1015 1020
 Asn Tyr Ile Ser Asn His Thr Leu Ala Glu Met Ser Lys Gly His Asn
 1025 1030 1035 1040
 Phe Leu Lys Glu Lys Asp Lys Ile Ser Gly Phe Gly Ser Ser Val Asp
 1045 1050 1055
 Lys His Leu Met Glu Asp Ser Asp Gly Gln Ser Phe Ile His Asn Pro
 1060 1065 1070
 Ser Leu Thr Val Thr Val Pro Ile Ala Pro Gly Glu Ser Asp Leu Glu
 1075 1080 1085
 Asn Met Asn Ala Glu Glu Leu Ser Ser Asp Ser Asp Ser Glu Tyr Ser
 1090 1095 1100
 Lys Val Arg Leu Asn Arg Ser Ser Ser Ser Glu Cys Ser Thr Val Asp
 1105 1110 1115 1120
 Asn Pro Phe Pro Gly Glu Gly Glu Glu Ala Glu Ala Glu Pro Met Asn
 1125 1130 1135
 Ser Asp Glu Pro Glu Ala Cys Phe Thr Asp Gly Cys Val Arg Arg Phe
 1140 1145 1150
 Ser Cys Cys Gln Val Asn Ile Glu Ser Gly Lys Gly Lys Ile Trp Trp
 1155 1160 1165

Asn Ile Arg Lys Thr Cys Tyr Lys Ile Val Glu His Ser Trp Phe Glu
 1170 1175 1180
 Ser Phe Ile Val Leu Met Ile Leu Leu Ser Ser Gly Ala Leu Ala Phe
 1185 1190 1195 1200
 Glu Asp Ile Tyr Ile Glu Arg Lys Lys Thr Ile Lys Ile Ile Leu Glu
 1205 1210 1215
 Tyr Ala Asp Lys Ile Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu
 1220 1225 1230
 Lys Trp Ile Ala Tyr Gly Tyr Lys Thr Tyr Phe Thr Asn Ala Trp Cys
 1235 1240 1245
 Trp Leu Asp Phe Leu Ile Val Asp Val Ser Leu Val Thr Leu Val Ala
 1250 1255 1260
 Asn Thr Leu Gly Tyr Ser Asp Leu Gly Pro Ile Lys Ser Leu Arg Thr
 1265 1270 1275 1280
 Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met
 1285 1290 1295
 Arg Val Val Val Asn Ala Leu Ile Gly Ala Ile Pro Ser Ile Met Asn
 1300 1305 1310
 Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly
 1315 1320 1325
 Val Asn Leu Phe Ala Gly Lys Phe Tyr Glu Cys Ile Asn Thr Thr Asp
 1330 1335 1340
 Gly Ser Arg Phe Pro Ala Ser Gln Val Pro Asn Arg Ser Glu Cys Phe
 1345 1350 1355 1360
 Ala Leu Met Asn Val Ser Gln Asn Val Arg Trp Lys Asn Leu Lys Val
 1365 1370 1375
 Asn Phe Asp Asn Val Gly Leu Gly Tyr Leu Ser Leu Leu Gln Val Ala
 1380 1385 1390
 Thr Phe Lys Gly Trp Thr Ile Ile Met Tyr Ala Ala Val Asp Ser Val
 1395 1400 1405
 Asn Val Asp Lys Gln Pro Lys Tyr Glu Tyr Ser Leu Tyr Met Tyr Ile
 1410 1415 1420
 Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu Asn Leu
 1425 1430 1435 1440
 Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys Lys Lys Leu
 1445 1450 1455
 Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn
 1460 1465 1470
 Ala Met Lys Lys Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg
 1475 1480 1485
 Pro Gly Asn Lys Ile Gln Gly Cys Ile Phe Asp Leu Val Thr Asn Gln
 1490 1495 1500
 Ala Phe Asp Ile Ser Ile Met Val Leu Ile Cys Leu Asn Met Val Thr
 1505 1510 1515 1520
 Met Met Val Glu Lys Glu Gly Gln Ser Gln His Met Thr Glu Val Leu
 1525 1530 1535
 Tyr Trp Ile Asn Val Val Phe Ile Ile Leu Phe Thr Gly Glu Cys Val
 1540 1545 1550
 Leu Lys Leu Ile Ser Leu Arg His Tyr Tyr Phe Thr Val Gly Trp Asn
 1555 1560 1565
 Ile Phe Asp Phe Val Val Val Ile Ile Ser Ile Val Gly Met Phe Leu
 1570 1575 1580
 Ala Asp Leu Ile Glu Thr Tyr Phe Val Ser Pro Thr Leu Phe Arg Val
 1585 1590 1595 1600
 Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val Lys Gly Ala
 1605 1610 1615

Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala
 1620 1625 1630
 Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala
 1635 1640 1645
 Ile Phe Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Asp Gly Ile
 1650 1655 1660
 Asn Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
 1665 1670 1675 1680
 Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro Ile
 1685 1690 1695
 Leu Asn Ser Lys Pro Pro Asp Cys Asp Pro Lys Lys Val His Pro Gly
 1700 1705 1710
 Ser Ser Val Glu Gly Asp Cys Gly Asn Pro Ser Val Gly Ile Phe Tyr
 1715 1720 1725
 Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val Val Asn Met Tyr
 1730 1735 1740
 Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr
 1745 1750 1755 1760
 Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu
 1765 1770 1775
 Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser
 1780 1785 1790
 Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn
 1795 1800 1805
 Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg
 1810 1815 1820
 Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly
 1825 1830 1835 1840
 Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe
 1845 1850 1855
 Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr
 1860 1865 1870
 Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala
 1875 1880 1885
 Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile
 1890 1895 1900
 Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp
 1905 1910 1915 1920
 Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp
 1925 1930 1935
 Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys
 1940 1945 1950
 Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys
 1955 1960 1965
 Gly Lys Asp Ser Lys Glu Ser Lys Lys
 1970 1975

<210> 8

<211> 5934

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 8

```

atggcaatgt tgcctcccc aggcactcag agctttgtcc atttcacaaa acagtctctt 60
gccctcattg aacaacgcat tgctgaaaga aaatcaaagg aaccctaaaga agaaaagaaa 120
gatgatgatg aagaagcccc aaagccaagc agtgacttgg aagctggcaa acaactgccc 180
ttcgctctatg gggacattcc tcccggcatg gtgtcagagc ccctggagga cttggacccc 240
tactatgcag acaaaaagac tttcatagta ttgaacaaag ggaaaacaat cttccgtttc 300
aatgccacac ctgctttata tatgctttct cctttcagtc ctctaagaag aatatctatt 360
aagattttag tacactcctt attcagcatg ctcatcatgt gcactattct gacaaactgc 420
atatttatga ccatgaataa cccgccggac tggaccaaaa atgtcgagta cacttttact 480
ggaatatata cttttgaatc acttgtaaaa atccttgcaa gaggcttctg tgtaggagaa 540
ttcacttttc ttcgtgaccc gtggaactgg ctggattttg tcgtcattgt tttgctgtat 600
ttaacagaat ttgtaaacct aggcaatggt tcagctcttc gaactttcag agtattgaga 660
gctttgaaaa ctattttctgt aatcccaggc ctgaagacaa ttgtaggggc tttgatccag 720
tcagtgaaga agctttctga tgcatgatc ctgactgtgt tctgtctgag tgtgtttgca 780
ctaattggac tacagctggt catgggaaac ctgaagcata aatgttttcg aaattcactt 840
gaaaataatg aaacattaga aagcataatg aataccctag agagtgaaga agactttaga 900
aaatattttt attacttgga aggatccaaa gatgctctcc tttgtgggtt cagcacagat 960
tcaggtcagt gtccagaggg gtacacctgt gtgaaaattg gcagaaaccc tgattatggc 1020
tacacgagct ttgacacttt cagctgggcc ttcttagcct tgtttaggct aatgacccaa 1080
gattactggg aaaaccttta ccaacagacg ctgctgtctg ctggcaaaac ctacatgatc 1140
ttctttgtcg tagtgatttt cctgggctcc ttttatctaa taaacttgat cctggctgtg 1200
gttgccatgg catatgaaga acagaaccag gcaaaccattg aagaagctaa acagaaagaa 1260
ttagaatttc aacagatggt agaccgtctt aaaaaagagc aagaagaagc tgaggcaatt 1320
gcagcggcag cggctgaata tacaagtatt aggagaagca gaattatggg cctctcagag 1380
agttcttctg aaacatccaa actgagctct aaaaagtcta aagaagaag aaacagaaga 1440
aagaaaaaga atcaaaagaa gctctccagt ggagaggaaa agggagatgc tgagaaattg 1500
tcgaaatcag aatcagagga cagcatcaga agaaaaagt tccaccttg tgtcgaaggg 1560
catagcgcag cacatgaaaa gaggttgtct accccaatc agtcaccact cagcattcgt 1620
ggctccttgt tttctgcaag gcgaagcagc tgaacaagtc tttttagttt caaaggcaga 1680
ggaagagata taggatctga gactgaattt gccgatgatg agcacagcat ttttgagac 1740
aatgagagca gaaggggctc actgtttgtg cccacagac cccaggagcg acgcagcagt 1800
aacatcagcc aagccagtag gtccccacca atgctgccgg tgaacgggaa aatgcacagt 1860
gctgtggact gcaacgggtg ggtctccctg gtgatggag gctcacccct catgctcccc 1920
aatggacagc tttctgccaga gggcacgacc aatcaaatac acaagaaaag gcgttgtagt 1980
tcctatctcc tttcagagga tatgtgaat gatcccaacc tcagacagag agcaatgagt 2040
agagcaagca tattaacaaa cactgtggaa gaactgaag agtccagaca aaaatgtcca 2100
ccttggtggt acagatttgc acacaaattc ttgatctgga attgctctcc atattggata 2160
aaattcaaaa agtgatatcta ttttattgta atggatcctt ttgtagatct tgcaattacc 2220
atttgcatag ttttaaacac attatttatg gctatggaac accaccaat gactgaggaa 2280
ttcaaaaatg tacttgctat aggaaatttg gtctttactg gaatctttgc agctgaaatg 2340
gtattaaaac tgattgccat ggatccatat gagtatttcc aagtaggctg gaatattttt 2400
gacagcctta ttgtgacttt aagtttagtg gagctcttcc tagcagatgt ggaaggattg 2460
tcagtctcgc gatcattcag actgctccga gtcttcaagt tggcaaaatc ctggccaaca 2520
ttgaacatgc tgattaagat catttgtaac tcagtagggg ctctaggtaa cctcacctta 2580
gtgttggcc aatcgtctt catttttgc gtggtcggca tgcaactctt tggtaagagc 2640
tacaagaat gtgtctgcaa gatcaatgat gactgtacgc tcccacgggtg gcacatgaac 2700
gacttcttcc actccttcc gattgtgttc cgcgtgctgt gtggagagtg gatagagacc 2760
atgtgggact gtatggaggt cgctgggtcaa gctatgtgcc ttattgttta catgatggtc 2820
atggtcattg gaaacctggt ggtcctaaac ctatttctgg ccttattatt gagctcattt 2880
agttcagaca atcttacagc aattgaagaa gacctgatg caaacaacct ccagattgca 2940
gtgactagaa ttaaaaaggg aataaattat gtgaacaaa ccttacgtga atttattcta 3000
aaagcatttt ccaaaaagcc aaagatttcc agggagataa gacaagcaga agatctgaat 3060
actaagaagg aaaactatat ttctaaccat acacttgctg aaatgagcaa aggtcacaat 3120
ttcctcaagg aaaaagataa aatcagtggt tttggaagca gcgtggacaa acacttgatg 3180
gaagacagtg atggtcaatc atttattcac aatcccagcc tcacagtgc agtgccaatt 3240

```



```

gcacctgggg aatccgattt ggaaaatatg aatgctgagg aacttagcag tgattcggat 3300
agtgaataca gcaaagttag attaaaccgg tcaagctcct cagagtgcag cacagttgat 3360
aaccctttgc ctggagaagg agaagaagca gaggctgaac ctatgaattc cgatgagcca 3420
gaggcctgtt tcacagatgg ttgtgtacgg aggttctcat gctgcccaag taacatagag 3480
tcagggaag gaaaaatctg gtggaacatc aggaaaacct gctacaagat tgttgaacac 3540
agttgggttg aaagcttcat tgtcctcatg atcctgctca gcagtgggtg cctggccttt 3600
gaagatattt atattgaaag gaaaaagacc attaaagatta tcctggagta tgcagacaag 3660
atcttcactt acatcttcat tctggaaatg cttctaaaat ggatagcata tggttataaa 3720
acatatttca ccaatgcctg gtgttggctg gatttcctaa ttgttgatgt ttctttgggt 3780
actttagtgg caaacactct tggctactca gatcttggcc ccattaaatc ccttcggaca 3840
ctgagagctt taagacctct aagagcctta tctagatttg aaggaatgag ggtcgttggtg 3900
aatgcactca taggagcaat tccttccatc atgaatgtgc tacttgtgtg tcttatattc 3960
tggctgatat tcagatcat gggagtaaat ttgtttgctg gcaagtctta tgagtgtatt 4020
aacaccacag atgggtcacg gtttctctga agtcaagtcc caaatcgctc cgaatgtttt 4080
gcccttatga atgttagtca aaatgtgcga tggaaaaacc tgaaagtga ctttgataat 4140
gtcggacttg gttacctatc tctgcttcaa gttgcaactt ttaagggtatg gacgattatt 4200
atgtatgcag cagtggattc tgtaaatgta gacaagcagc ccaaatatga atatagcctc 4260
tacatgtata tttattttgt cgtctttatc atctttgggt cattcttcac tttgaacttg 4320
ttcattgggtg tcatcataga taatttcaac caacagaaaa agaagcttgg aggtcaagac 4380
atctttatga cagaagaaca gaagaaatc tataatgcaa tgaaaaagct ggggtccaag 4440
aagccacaaa agccaatttc tcgaccaggg aacaaaatcc aaggatgtat atttgaccta 4500
gtgacaaatc aagcctttga tattagtatc atggttctta tctgtctcaa catggttaacc 4560
atgatggtag aaaaggaggg tcaaagtcaa catatgactg aagttttata ttggataaat 4620
gtggttttta taatcctttt cactggagaa tgtgtgctaa aactgatctc cctcagacac 4680
tactacttca ctgtaggatg gaatatTTTT gatTTTgtgg ttgtgattat ctccattgta 4740
ggtatgtttc tagctgattt gattgaaacg tattttgtgt cccctaccct gttccgagt 4800
atccgtcttg ccaggatttg ccgaatccta cgtctagtea aaggagcaaa ggggatccgc 4860
acgctgctct ttgctttgat gatgtccctt cctgcgttgt ttaacatcgg cctcctgctc 4920
ttcctggtea tgttcactca cgccatcttt ggaatgtcca actttgccta tgtaaaaaag 4980
gaagatggaa ttaatgacat gttcaatttt gagaccttg gcaacagtat gatttgcctg 5040
ttccaaatta caacctctgc tggctgggat ggattgctag cacctattct taacagtaag 5100
ccaccggact gtgacccaaa aaaagttcat cctggaagt cagttagaag agactgtggt 5160
aaccatctg ttggaatatt ctactttgtt agttatatca tcatatcctt cctgggttggt 5220
gtgaacatgt acattgcagt catactggag aattttagt ttgccactga agaaagtact 5280
gaacctctga gtgaggatga ctttgagatg ttctatgagg ttggggagaa gtttgatccc 5340
gatgcgaccc agtttataga gttctctaaa ctctctgatt ttgcagctgc cctggatcct 5400
cctcttctca tagcaaaacc caacaaagtc cagctcattg ccatggatct gcccatggtt 5460
agtgttgacc ggtaccattg tcttgacatc ttatttgctt ttacaaagcg tgttttgggt 5520
gagagtgggg agatggattc tcttcgttca cagatggaag aaaggttcat gtctgcaaat 5580
ccttccaaag tgcctatga acccatcaca accacactaa aacggaaaca agaggatgtg 5640
tctgctactg tcatcagcg tgcttataga cgttaccgct taaggcaaaa tgtcaaaaat 5700
atatcaagta tatacataaa agatggagac agagatgatg atttactcaa taaaaaagat 5760
atggcttttg ataagttaa tgagaactca agtccagaaa aacagatgc cacttcatcc 5820
accacctctc caccttcata tgatagtgtg acaaagccag acaaagagaa atatgaacaa 5880
gacagaacag aaaaggaaga caaagggaag gacagcaagg aaagcaaaaa atag 5934

```

<210> 9

<211> 5934

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 9

atggcaatgt	tgcctccccc	aggacctcag	agctttgtcc	atttcacaaa	acagtctctt	60
gccctcattg	aacaacgcac	tgctgaaaga	aaatcaaaag	aacccaaaga	agaaaagaaa	120
gatgatgatg	aagaagcccc	aaagccaagc	agtgaacttg	aagctggcaa	acaactgccc	180
ttcatctatg	gggacattcc	tcccggcatg	gtgtcagagc	ccctggagga	cttggacccc	240
tactatgcag	acaaaaagac	tttcatagta	ttgaacaaag	ggaaaacaat	cttccgtttc	300
aatgccacac	ctgctttata	tatgctttct	cctttcagtc	ctctaagaag	aatatctatt	360
aagatttttag	tacactcctt	attcagcatg	ctcatcatgt	gcactattct	gacaaactgc	420
atattttatga	ccatgaataa	cccgcaggac	tggaccaaaa	atgtcgagta	cacttttact	480
ggaatatata	cttttgaaatc	acttgtaaaa	atccttgcaa	gaggcttctg	tgtaggagaa	540
ttcacttttc	ttcgtgaccc	gtggaactgg	ctggattttg	tcgtcattgt	ttttgcgtat	600
ttaacagaat	ttgtaaacct	aggcaatggt	tcagctcttc	gaactttcag	agtattgaga	660
gctttgaaaa	ctattttctgt	aatcccaggc	ctgaagacaa	ttgtaggggc	tttgatccag	720
tcagtgaaga	agctttctga	tgtcatgatc	ctgactgtgt	tctgtctgag	tgtgtttgca	780
ctaattggac	tacagctggt	catgggaaac	ctgaagcata	aatgttttcg	aaattcactt	840
gaaaataatg	aaacattaga	aagcataatg	aataccctag	agagtgaaga	agactttaga	900
aaatattttt	attacttgga	aggatccaaa	gatgctctcc	tttgtggttt	cagcacagat	960
tcaggtcagt	gtccagaggg	gtacacctgt	gtgaaaattg	gcagaaaccc	tgattatggc	1020
tacacgagct	ttgacacttt	cagctggggc	ttcttagcct	tgtttaggct	aatgacccaa	1080
gattactggg	aaaaccttta	ccaacagacg	ctgctgtctg	ctggcaaaac	ctacatgatc	1140
ttctttgtcg	tagtgatttt	cctgggctcc	ttttatctaa	taaaactgat	cctggctgtg	1200
gttgccatgg	catatgaaga	acagaaccag	gcaaacattg	aagaagctaa	acagaaagaa	1260
ttagaatttc	aacagatggt	agaccgtctt	aaaaaagagc	aagaagaagc	tgaggcaatt	1320
gcagcggcag	cggctgaata	tacaagtatt	aggagaagca	gaattatggg	cctctcagag	1380
agttcttctg	aaacatccaa	actgagctct	aaaagtgtct	aagaaagaag	aaacagaaga	1440
aagaaaaaga	atcaaaaagaa	gctctccagt	ggagaggaaa	agggagatgc	tgagaaattg	1500
tcgaaatcag	aatcagagga	cagcatcaga	agaaaaagtt	tccaccttgg	tgtcgaaggg	1560
cataggcgag	cacatgaaaa	gagggttgtct	acccccaatc	agtcaccact	cagcattcgt	1620
ggctccttgt	tttctgcaag	gcgaagcagc	agaacaagtc	tttttagttt	caaaggcaga	1680
ggaagagata	taggatctga	gactgaattt	gccgatgatg	agcacagcat	ttttggagac	1740
aatgagagca	gaaggggctc	actgtttgtg	ccccacagac	cccaggagcg	acgcagcagt	1800
aacatcagcc	aagccagtag	gtccccacca	atgctgccgg	tgaacgggaa	aatgcacagt	1860
gctgtggact	gcaacgggtg	ggtctccctg	gttgatggac	gctcagccct	catgctcccc	1920
aatggacagc	ttctgccaga	gggcacgacc	aatcaaatat	acaagaaaaag	gcgttgtagt	1980
tcctatctcc	tttcagagga	tatgctgaat	gatcccaacc	tcagacagag	agcaatgagt	2040
agagcaagca	tattaacaaa	cactgtggaa	gaacttgaag	agtccagaca	aaaatgtcca	2100
ccttggtggt	acagatttgc	acacaaattc	ttgatctgga	attgctctcc	atattggata	2160
aaattcaaaa	agtgtatcta	ttttatttga	atggatcctt	ttgtagatct	tgcaattacc	2220
atttgcatag	ttttaaacac	attatttatg	gctatggaac	accacccaat	gactgaggaa	2280
ttcaaaaatg	tacttgctat	aggaaatttg	gtctttactg	gaatctttgc	agctgaaatg	2340
gtattaaaac	tgattgccat	ggatccatat	gagtatcttc	aagtaggctg	gaatattttt	2400
gacagcctta	ttgtgacttt	aagtttagtg	gagctctttc	tagcagatgt	ggaaggattg	2460
tcagttctgc	gatcattcag	actgctccga	gtcttcaagt	tggcaaaaatc	ctggccaaca	2520
ttgaacatgc	tgattaagat	cattggtaac	tcagtagggg	ctcaggttaa	cctcacctta	2580
gtgttggcca	tcacgtctct	catttttgc	gtggtcggca	tgcaactctt	tggtaagagc	2640
tacaaaagaat	gtgtctgcaa	gatcaatgat	gactgtacgc	tcccacgggtg	gcacatgaac	2700
gacttctctc	actccttctc	gatttgtgtc	cgcgtgctgt	gtggagagtg	gatagagacc	2760
atgtgggact	gtatggagggt	cgctgggtcaa	gctatgtgcc	ttattgttta	catgatggtc	2820
atggtcattg	gaaacctgggt	ggctcctaac	ctatttctgg	ccttattatt	gagctcattt	2880
agttcagaca	atcttacagc	aattgaagaa	gacctgatg	caaacaacct	ccagatttga	2940
gtgactagaa	ttaaaaaggg	aataaattat	gtgaacaaaa	ccttacgtga	atttatttcta	3000
aaagcatttt	ccaaaaagcc	aaagatttcc	agggagataa	gacaagcaga	agatctgaat	3060
actaagaagg	aaaactatat	ttctaaccat	acacttgctg	aaatgagcaa	aggtcacaat	3120
ttcctcaagg	aaaaagataa	aatcagtggt	tttggaaagca	gcgtggacaa	acacttgatg	3180
gaagacagtg	atggtcaatc	atttattcac	aatcccagcc	tcacagtgac	agtgccaatt	3240
gcacctgggg	aatccgattt	ggaaaatatg	aatgctgagg	aacttagcag	tgattcggat	3300
agtgaataca	gcaaaagtga	attaaaccgg	tcaagctcct	cagagtgcag	cacagttgat	3360

```

aaccctttgc ctggagaagg agaagaagca gaggctgaac ctatgaattc cgatgagcca 3420
gaggcctgtt tcacagatgg ttgtgtacgg aggttctcat gctgccaaagt taacatagag 3480
tcagggaaaag gaaaaatctg gtggaacatc aggaaaacct gctacaagat tgttgaacac 3540
agttgggtttg aaagcttcat tgtcctcatg atcctgctca gcagtgggtgc cctggctttt 3600
gaagatattt atattgaaag gaaaaagacc attaaagatta tcctggagta tgcagacaag 3660
atcttcactt acatcttcat tctggaaatg cttctaaaat ggatagcata tggttataaa 3720
acatatttca ccaatgcctg gtgttggctg gatttcctaa ttgttgatgt ttctttgggt 3780
acttttagtgg caaacactct tggctactca gatcttggcc ccattaaatc ccttcggaca 3840
ctgagagctt taagacctct aagagcctta tctagatttg aaggaatgag ggtcgtttgt 3900
aatgcactca taggagcaat tccttccatc atgaatgtgc tacttgtgtg tcttatattc 3960
tggctgatat tcagcatcat gggagtaaat ttgtttgctg gcaagttcta tgagtgtatt 4020
aacaccacag atgggtcacg gtttctctga agtcaagttc caaatcgttc cgaatgtttt 4080
gcccttatga atgttagtca aaatgtgcga tggaaaaacc tgaaagtga ctttgataat 4140
gtcggacttg gttacctatc tctgcttcaa gttgcaactt ttaagggatg gacgattatt 4200
atgtatgcag cagtggattc tgtaatgta gacaagcagc ccaaataatga atatagcctc 4260
tacatgtata tttattttgt cgtctttatc atctttgggt cattcttcac tttgaacttg 4320
ttcattggtg tcatcataga taatttcaac caacagaaaa agaagcttgg aggtcaagac 4380
atctttatga cagaagaaca gaagaaatcc tataatgcaa tgaaaaagct ggggtccaag 4440
aagccacaaa agccaattcc tcgaccaggg aacaaaatcc aaggatgtat atttgacctt 4500
gtgacaaaatc aagcctttga tattagtatc atggttctta tctgtctcaa catggaacc 4560
atgatggtag aaaaggaggg tcaaagtcaa catatgactg aagttttata ttggataaat 4620
gtggtttttt taatcctttt cactggagaa tgtgtgctaa aactgatctc cctcagacac 4680
tactacttca ctgtaggatg gaatatTTTT gattttgttg ttgtgattat ctccattgta 4740
ggtagtgttc tagctgattt gattgaaacg tatTTTgtgt cccctaccct gttccgagt 4800
atcgtcttg ccaggattgg ccgaatccta cgtctagtca aaggagcaaa ggggatccgc 4860
acgtgctctt ttgctttgat gatgtccctt cctgcgttgt ttaacatcgg cctcctgctc 4920
ttcctggtca tgttcatcta cgccatcttt ggaatgtcca actttgccta tgttaaaaag 4980
gaagatggaa ttaatgacat gttcaatttt gagaccttg gcaacagtat gatttgcctg 5040
ttccaaatta caacctctgc tggctgggat ggattgctag cacctattct taacagtaag 5100
ccaccgact gtgacccaaa aaaagtccat cctggaagtt cagttgaagg agactgtggt 5160
aaccatctg ttggaatatt ctactttgtt agttatatca tcatatcctt cctggttgtg 5220
gtgaacatgt acattgcagt cactactggag aatttttagt ttgccactga agaaagtact 5280
gaacctctga gtgaggatga ctttgagatg ttctatgagg tttgggagaa gtttgatccc 5340
gatgcgaccc agtttataga gttctctaaa ctctctgatt ttgcagctgc cctggatcct 5400
cctcttctca tagcaaaacc caacaaagtc cagctcattg ccatggatct gcccatggtt 5460
agtgtgacc ggatccattg tcttgacatc ttatttgctt ttacaaagcg tgttttgggt 5520
gagagtgggg agatggattc tcttcgttca cagatggaag aaaggttcat gtctgcaaat 5580
ccttccaaag tgtcctatga acccatcaca cgttaccgct taaggcaaaa tgtcaaaaat 5700
tctgctactg tcattcagcg tgcttataga agagatgatg atttactcaa taaaaaagat 5760
atatcaagta tatacataaa agatggagac agtccagaaa aaacagatgc cacttcatcc 5820
atggcttttg ataagttaa tgagaactca acaaagccag acaaagagaa atatgaacaa 5880
accacctctc caccttcata tgatagtgtg gacagcaagg aaagcaaaa atag 5934
gacagaacag aaaaggaaga caaagggaag

```

<210> 10

<211> 5934

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 10

```

atggcaatgt tgctccccc aggacctcag agctttgtcc atttcacaaa acagtctctt 60
gccctcattg aacaacgcat tgctgaaaga aaatcaaagg aacccaaaga agaaaagaaa 120

```

gatgatgatg	aagaagcccc	aaagccaagc	agtgacttgg	aagctggcaa	acaactgccc	180
ttcatctatg	gggacattcc	tcccggcatg	gtgtcagagc	ccctggagga	cttggacccc	240
tactatgcag	acaaaaagac	tttcatagta	ttgaacaaag	ggaaaacaat	cttccgtttc	300
aatgccacac	ctgctttata	tatgctttct	cctttcagtc	ctctaagaag	aatatctatt	360
aagattttag	tacactcctt	attcagcatg	ctcatcatgt	gcactattct	gacaaactgc	420
atattttatga	ccatgaataa	cccgccggac	tggaccaaaa	atgtcagta	cacttttact	480
ggaatatata	cttttgaatc	acttgtaaaa	atccttgcaa	gaggcttctg	tgtaggagaa	540
ttcacttttc	ttcgtgaccc	gtggaactgg	ctggattttg	tcgtcattgt	ttttgcgtat	600
ttaacagaat	ttgtaaacct	aggcaatggt	tcagctcttc	gaactttcag	agtattgaga	660
gctttgaaaa	ctattttctgt	aatcccaggc	ctgaagacaa	ttgtaggggc	tttgatccag	720
tcagtgaaga	agctttctga	tgtcatgata	ctgactgtgt	tctgtctgag	tgtgtttgca	780
ctaattggac	tacagctggt	catgggaaac	ctgaagcata	aatgttttcg	aaattcactt	840
gaaaataatg	aaacattaga	aagcataatg	aataccctag	agagtgaaga	agactttaga	900
aaatattttt	attacttgga	aggatccaaa	gatgctctcc	tttgtggttt	cagcacagat	960
tcaggtcagt	gtccagaggg	gtacacctgt	gtgaaaattg	gcagaaaccc	tgattatggc	1020
tacacgagct	ttgacacttt	cagctggggc	ttcttagcct	tgtttaggct	aatgacccaa	1080
gattactggg	aaaaccttta	ccaacagacg	ctgctgtctg	ctggcaaaac	ctacatgata	1140
ttctttgtcg	tagtgatttt	cctgggctcc	ttttatctaa	taaacttgat	cctggctgtg	1200
gttgccatgg	catatgaaga	acagaaccag	gcaaacattg	aagaagctaa	acagaaagaa	1260
ttagaatttc	aacagatggt	agaccgtctt	aaaaaagagc	aagaagaagc	tgaggcaatt	1320
gcagcggcag	cggctgaata	tacaagtatt	aggagaagca	gaattatggg	cctctcagag	1380
agttcttctg	aaacatccaa	actgagctct	aaaagtgtct	aagaaagaag	aaacagaaga	1440
aagaaaaaga	atcaaaaaga	gctctccagt	ggagagggaa	agggagatgc	tgagaaattg	1500
tcgaaatcag	aatcagagga	cagcatcaga	agaaaaagtt	tccaccttgg	tgtcgaaggg	1560
cataggcgag	cacatgaaaa	gaggttggtc	acccccaatc	agtcaccact	cagcattcgt	1620
ggctccttgt	tttctgcaag	gcgaagcagc	agaacaagtc	tttttagttt	caaaggcaga	1680
ggaagagata	taggatctga	gactgaattt	gccgatgatg	agcacagcat	ttttggagac	1740
aatgagagca	gaaggggctc	actgtttgtg	ccccacagac	cccaggagcg	acgcagcagt	1800
aacatcagcc	aagccagtag	gtccccacca	atgtgcccgg	tgaacgggaa	aatgcacagt	1860
gctgtggact	gcaacggtgt	ggtctccctg	gttgatggac	gctcagccct	catgctcccc	1920
tatggacagc	ttctgccaga	gggcacgacc	aatcaaatac	acaagaaaag	gcgtttagat	1980
tcctatctcc	tttcagagga	tatgctgaat	gatcccaacc	tcagacagag	agcaatgagt	2040
agagcaagca	tattaacaaa	cactgtggaa	gaacttgaag	agtcagaca	aaaatgtcca	2100
ccttggtggg	acacaaattc	acacaaattc	ttgatctgga	attgctctcc	atattggata	2160
aaattcaaaa	agtgtatcta	ttttattgta	atggatcctt	ttgtagatct	tgcaattacc	2220
atttgcatag	ttttaaacac	attatttatg	gctatggaa	accacccaat	gactgaggaa	2280
ttcaaaaatg	tacttgctat	aggaaatttg	gtctttactg	gaatctttgc	agctgaaatg	2340
gtattaaaac	tgattgccat	ggatccatat	gagttttcc	aagtaggctg	gaatattttt	2400
gacagcctta	ttgtgacttt	aagtttagtg	gagctcttcc	tagcagatgt	ggaaggattg	2460
tcagtctcgc	gatcattcag	actgctccga	gtcttcaagt	tggcaaaatc	ctggccaaca	2520
ttgaacatgc	tgattaagat	cattggtaac	tcagtagggg	ctctaggtaa	cctcacctta	2580
gtgttgggcca	tcacgtctct	catttttgc	gtggctggca	tcagactctt	tggtaagagc	2640
tacaaaagaat	gtgtctgcaa	gatcaatgat	gactgtacgc	tcccacgggtg	gcacatgaac	2700
gacttcttcc	actccttcc	gattgtgttc	cgctgtctgt	gtggagagtg	gatagagacc	2760
atgtgggact	gtatggaggt	cgctgggtcaa	gctatgtgcc	ttattgttta	catgatggtc	2820
atggctcattg	gaaacctggt	ggctcctaaac	ctatttctgg	ccttattatt	gagctcattt	2880
agttcagaca	atcttacagc	aattgaagaa	gacctgtatg	caaacaacct	ccagattgca	2940
gtgactagaa	ttaaaaaggg	aataaattat	gtgaaacaaa	ccttactgta	atttattcta	3000
aaagcatttt	ccaaaaagcc	aaagatttcc	agggagataa	gacaagcaga	agatctgaat	3060
actaagaagg	aaaactatat	ttctaaccat	acacttgctg	aaatgagcaa	aggtcacaat	3120
ttcctcaagg	aaaaagataa	aatcagtggt	tttggaagca	gcgtggacaa	acacttgatg	3180
gaagacagtg	atgggtcaatc	atttattcac	aatcccagcc	tcacagtgc	agtgccaatt	3240
gcacctgggg	aatccgattt	ggaaaatatg	aatgctgagg	aacttagcag	tgattcggat	3300
agtgaataca	gcaaagtgcg	attaaaccgg	tcaagctcct	cagagtgcag	cacagttgat	3360
aaccttttgc	ctggagaagg	agaagaagca	gaggctgaac	ctatgaattc	cgatgagcca	3420
gaggcctggt	tcacagatgg	ttgtgtacgg	aggttctcat	gctgccaagt	taacatagag	3480

```

tcagggaaag gaaaaatctg gtggaacatc agggaaacct gctacaagat tgttgaacac 3540
agttgggttg aaagcttcat tgtcctcatg atcctgctca gcagtgggtg cctggctttt 3600
gaagatattt atattgaaag gaaaaagacc attagatta tcctggagta tgcagacaag 3660
atcttcactt acatcttcat tctggaaatg cttctaaaat ggatagcata tggttataaa 3720
acatatttca ccaatgcctg gtgttggtg gatttcctaa ttgttgatgt ttctttggtt 3780
actttagtgg caaacactct tggctactca gatcttggcc ccattaaatc ccttcggaca 3840
ctgagagctt taagacctct aagagcctta tctagatttg aaggaatgag ggtcgttggtg 3900
aatgcactca taggagcaat tccttccatc atgaatgtgc tacttggtgtg tcttatattc 3960
tggtgatata tcagcatcat gggagtaaat ttgtttgctg gcaagtctta tgagtgtatt 4020
aacaccacag atgggtcacg gtttcctgca agtcaagtgc caaatcgttc cgaatgtttt 4080
gcccttatga atgttagtca aaatgtgcga tggaaaaacc tgaaagtga ctttgataat 4140
gtcggacttg gttacctatc tctgcttcaa gttgcaactt ttaagggatg gacgattatt 4200
atgtatgcag cagtggattc tgttaatgta gacaagcagc ccaaatatga atatagcctc 4260
tacatgtata tttattttgt cgtctttatc atctttgggt cattcttcac tttgaacttg 4320
ttcattgggtg tcatcataga taatttcaac caacagaaaa agaagcttgg aggtcaagac 4380
atctttatga cagaagaaca gaagaaatc tataatgcaa tgaaaaagct ggggtccaag 4440
aagccacaaa agccaattcc tcgaccaggg aacaaaatcc aaggatgtat atttgacctg 4500
gtgacaaatc aagcctttga tattagtatc atggttctta tctgtctcaa catggttaacc 4560
atgatggtag aaaaggaggg tcaaaagtcaa catatgactg aagttttata ttggataaat 4620
gtggttttta taatcctttt cactggagaa tgtgtgctaa aactgatctc cctcagacac 4680
tactacttca ctgtaggatg gaattttttt gattttgtgg ttgtgattat ctccattgta 4740
ggatgtttc tagctgattt gattgaaacg tattttgtgt cccctaccct gttccgagtg 4800
atccgtcttg ccaggatttg ccgaatccta cgtctagtca aaggagcaaa ggggatccgc 4860
acgtgctctg ttgctttgat gatgtccctt cctgcgttgt ttaacatcgg cctcctgctc 4920
ttcctggcca tttcatctca cgccatcttt ggaatgtcca actttgccta tgttaaaaag 4980
gaagatggaa ttaatgacat gttcaatttt gagacctttg gcaacagtat gatttgcctg 5040
ttccaaatta caacctctgc tggctgggat ggattgctag cacctattct taacagtaag 5100
ccaccgact gtgacccaaa aaaagttcat cctggaagtt cagttgaagg agactgtggt 5160
aaccatctg ttggaatatt ctactttgtt agttatatca tcatatcctt cctggttggtg 5220
gtgaacatgt acattgcagt catactggag aatttttagtg ttgccactga agaaagtact 5280
gaacctctga gtgaggatga ctttgagatg ttctatgagg tttgggagaa gtttgatccc 5340
gatgcaaccc agtttataga gttctctaaa ctctctgatt ttgcagctgc cctggatcct 5400
cctcttctca tagcaaaacc caacaaagtc cagctcattg ccatggatct gccatgggt 5460
agtgttgacc ggtccattg tcttgacatc ttatttgctt ttacaaagcg tgttttgggt 5520
gagagtgggg agatggattc tcttcgttca cagatggaag aaaggttcat gctgcacaa 5580
ccttccaaag tgtcctatga acccatcaca accacactaa aacggaaaca agaggatgtg 5640
tctgctactg tcattcagcg tgcttataga cgttaccgct taaggcaaaa tgtcaaaaat 5700
atatcaagta tatacataaa agatggagac agagatgatg atttactcaa taaaaaagat 5760
atggcttttg ataattgttaa tgagaactca agtccagaaa aaacagatgc cacttcatcc 5820
accacctctc caccttcata tgatagtgtg acaaagccag acaaagagaa atatgaacaa 5880
gacagaacag aaaaggaaga caaagggaaa gacagcaagg aaagcaaaaa atag 5934

```

<210> 11

<211> 5934

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 11

```

atggcaatgt tgccctcccc aggcctcag agctttgtcc atttcacaaa acagtctctt 60
gccctcattg aacaacgcat tgctgaaaga aaatcaaagg aacccaaaga agaaaagaaa 120
gatgatgatg aagaagcccc aaagccaagc agtgacttgg aagctggcaa acaactgccc 180
ttcatctatg gggacattcc tcccggcatg gtgtcagagc cctggagga cttggacccc 240

```

tactatgcag	acaaaaagac	tttcatagta	ttgaacaaag	ggaaaacaat	cttccgtttc	300
aatgccacac	ctgctttata	tatgctttct	cctttcagtc	ctctaagaag	aatatctatt	360
aagattttag	tacactcctt	attcagcatg	ctcatcatgt	gcactattct	gacaaactgc	420
atatttatga	ccatgaataa	cccgccggac	tggaccaaaa	atgtcgagta	cacttttact	480
ggaatatata	cttttgaatc	acttgtaaaa	atccttgcaa	gaggcttctg	tgtaggagaa	540
ttcacttttc	ttcgtgaccc	gtggaactgg	ctggattttg	tcgtcattgt	ttttgcgtat	600
ttaacagaat	ttgtaaacct	aggcaatggt	tcagctcttc	gaactttcag	agtattgaga	660
gctttgaaaa	ctatttctgt	aatcccaggc	ctgaagacaa	ttgtaggggc	tttgatccag	720
tcagtgaaga	agctttctga	tgtcatgatc	ctgactgtgt	tctgtctgag	tgtgtttgca	780
ctaattggac	tacagctggt	catgggaaac	ctgaagcata	aatgttttcg	aaattcactt	840
gaaaataatg	aaacattaga	aagcataatg	aataccctag	agagtgaaga	agactttaga	900
aaatattttt	attacttgga	aggatccaaa	gatgctctcc	tttgtggttt	cagcacagat	960
tcaggtcagt	gtccagaggg	gtacacctgt	gtgaaaattg	gcagaaaccc	tgattatggc	1020
tacacgagct	ttgacacttt	cagctggggc	ttcttagcct	tgtttaggct	aatgacccaa	1080
gattactggg	aaaaccttta	ccaacagacg	ctgcgtgctg	ctggcaaaac	ctacatgatc	1140
ttctttgtcg	tagtgatttt	cctgggctcc	ttttatctaa	taaacttgat	cctggctgtg	1200
gttgccatgg	catatgaaga	acagaaccag	gcaaacattg	aagaagctaa	acagaaagaa	1260
ttagaatttc	aacagatggt	agaccgtctt	aaaaaagagc	aagaagaagc	tgaggcaatt	1320
gcagcggcag	cggctgaata	tacaagtatt	aggagaagca	gaattatggg	cctctcagag	1380
agttcttctg	aaacatccaa	actgagctct	aaaagtgcct	aagaaagaag	aaacagaaga	1440
aagaaaaaga	atcaaaagaa	gctctccagt	ggagaggaaa	agggagatgc	tgagaaattg	1500
tcgaaatcag	aatcagagga	cagcatcaga	agaaaaagtt	tccaccttgg	tgtcgaaggg	1560
cataggcgag	cacatgaaaa	gagggttgtct	acccccaatc	agtcaccact	cagcattcgt	1620
ggctccttgt	ttcttgcaag	gcgaagcagc	agaacaagtc	tttttagttt	caaaggcaga	1680
ggaagagata	taggatctga	gactgaattt	gccgatgatg	agcacagcat	ttttggagac	1740
aatgagagca	gaaggggctc	actgtttgtg	ccccacagac	cccaggagcg	acgcagcagt	1800
aacatcagcc	aagccagtag	gtccccacca	atgctgccgg	tgaacgggaa	aatgcacagt	1860
gctgtggact	gcaacgggtg	ggtctccctg	gttgatggac	gctcagccct	catgctcccc	1920
aatggacagc	ttctgccaga	gggcacgacc	aatcaaatc	acaggaaaaag	gcgttgtagt	1980
tcctatctcc	tttcagagga	tatgctgaat	gatcccaacc	tcagacagag	agcaatgagt	2040
agagcaagca	tattaacaaa	cactgtggaa	gaacttgaag	agtcacagaca	aaaatgtcca	2100
ccttggtggt	acagatttgc	acacaaattc	ttgatctgga	attgctctcc	atattggata	2160
aaattcaaaa	agtgtatcta	ttttattgta	atggatcctt	ttgtagatct	tgcaattacc	2220
atgtgcatag	ttttaaacac	attattttatg	ctatggaaac	accacccaat	gactgaggaa	2280
ttcaaaaatg	tacttgctat	aggaaatttg	gtctttactg	gaatctttgc	agctgaaatg	2340
gtattaaaac	tgattgccat	ggatccatat	gagtatttcc	aagtaggctg	gaatattttt	2400
gacagcctta	ttgtgacttt	aagttttagtg	gagctctttc	tagcagatgt	ggaaggattg	2460
tcagttctgc	gatcattcag	actgctccga	gtcttcaagt	tggcaaaatc	ctggccaaca	2520
ttgaacatgc	tgattaagat	catttgtaac	tcagtagggg	ctctaggtaa	cctcacctta	2580
gtgttgccca	tcatcgtctt	cattttttgct	gtggctcgga	tgacgtcttt	tggttaagagc	2640
tacaaagaat	gtgtctgcaa	gatcaatgat	gactgtacgc	tcccacgggtg	gcacatgaac	2700
gacttcttcc	actccttcc	gatttgtgtc	cgcgtgctgt	gtggagagtg	gatagagacc	2760
atgtgggact	gtatggaggt	cgtgtgtcaa	gctatgtgcc	ttattgttta	catgatggtc	2820
atggtcattg	gaaacctggt	ggctcctaac	ctatttctgg	ccttattatt	gagctcattt	2880
agttcagaca	atcttacagc	aattgaagaa	gacctgatg	caaacaacct	ccagattgca	2940
gtgactagaa	ttaaaaaggg	aataaattat	gtgaaacaaa	ccttacgtga	atattattcta	3000
aaagcatttt	ccaaaaagcc	aaagatttcc	agggagataa	gacaagcaga	agatctgaat	3060
actaagaagg	aaaactatat	ttctaaccat	acacttgctg	aatgagcaa	aggtcacaat	3120
ttcctcaagg	aaaaagataa	aatcagtggt	tttggaaagca	gcgtggacaa	acacttgatg	3180
gaagacagtg	atggtcaatc	atatttcac	aatcccagcc	tcacagtgc	agtgccaatt	3240
gcacctgggg	aatccgattt	ggaaaaatag	aatgctgagg	aacttagcag	tgattcggat	3300
agtgaataca	gcaaagtgcg	attaaaccgg	tcaagctcct	cagagtgcag	cacagttgat	3360
aaccttttgc	ctggagaagg	agaagaagca	gaggctgaac	ctatgaattc	cgatgagcca	3420
gaggcctggt	tcacagatgg	ttgtgtacgg	aggttctcat	gctgccaaagt	taacatagag	3480
tcaggggaaa	gaaaaatctg	gtggaacatc	aggaaaacct	gctacaagat	tgttgaacac	3540
agttgggttg	aaagcttcat	tgtcctcatg	atcctgctca	gcagtgggtc	cctggctttt	3600

```

gaagatatatt atattgaaag gaaaaagacc attaagatta tcctggagta tgcagacaag 3660
atcttcactt acatcttcat tctggaaatg cttctaaaat ggatagcata tggttataaa 3720
acatatattca ccaatgcctg gtgttggtg gatttcctaa ttgttgatgt ttctttggtt 3780
acttttagtg caaacactct tggctactca gatcttggcc ccattaaatc ccttcggaca 3840
ctgagagctt taagacctct aagagcctta tctagatttg aaggaatgag ggtcgtttgt 3900
aatgcaactca taggagcaat tccttccatc atgaatgtgc tacttggtgt tcttatattc 3960
tggctgatat tcagcatcat gggagtaaat ttgtttgctg gcaagttcta tgagtgtatt 4020
aacaccacag atgggtcacg gtttcctgca agtcaagttc caaatcgttc cgaatgtttt 4080
gcccttatga atgttagtca aaatgtgcga tggaaaaacc tgaaagtga ctttgataat 4140
gtcggacttg gttacatatc tctgcttcaa gttgcaactt ttaagggatg gacgattatt 4200
atgtatgcag cagtggattc tgtaaatgta gacaagcagc ccaaatatga atatagcctc 4260
tacatgtata tttattttgt cgtctttatc atctttgggt cattcttcac tttgaacttg 4320
ttcattggtg tcatcataga taatttcaac caacagaaaa agaagcttgg aggtcaagac 4380
atctttatga cagaagaaca gaagaaatag tataatgcaa tgaaaaagct ggggtccaag 4440
aagccacaaa agccaattcc tcgaccaggg aacaaaatcc aaggatgtat atttgacct 4500
gtgacaaatc aagcctttga tattagtatc atggttctta tctgtctcaa catggtaacc 4560
atgatggtag aaaaggaggg tcaaagtcaa catatgactg aagttttata ttggataaat 4620
gtgggtttta taatcctttt cactggagaa tgtgtgctaa aactgatctc cctcagacac 4680
tactacttca ctgtaggatg gaatatTTTT gattttgttg ttgtgattat ctccattgta 4740
ggtatgtttc tagctgattt gattgaaacg tattttgtgt cccctaccct gttccgagt 4800
atccgtcttg ccaggatttg ccgaatccta cgtctagtca aaggagcaaa ggggatccgc 4860
acgtgtctct ttgctttgat gatgtccctt cctgcgttgt ttaacatcgg cctcctgctc 4920
ttcctggtca tgttcatcta cgccatcttt ggaatgtcca actttgccta tgttaaaaag 4980
gaagatggaa ttaatgacat gttcaatttt gagacctttg gcaacagtat gatttgctg 5040
ttccaaatta caacctctgc tggctgggat ggattgctag cacctattct taacagtaag 5100
ccaccgact gtgacccaaa aaaagtccat cctggaagtt cagttgaagg agactgtggt 5160
aaccatctg ttggaatatt ctactttgtt agttatatca tcatatcctt cctggtttgt 5220
gtgaacatgt acattgcagt catactggag aatttttagt ttgccactga agaaagtact 5280
gaacctctga gtgaggatga ctttgagatg ttctatgagg ttggggagaa gtttgatccc 5340
gatgcgaccc agtttataga gttctctaaa ctctctgatt ttgcagctgc cctggatcct 5400
cctcttctca tagcaaaacc caacaaagtc cagctcattg ccatggatct gccatggtt 5460
agtggtgacc ggtccattg tcttgacatc ttatttgctt ttacaaagcg tgttttggt 5520
gagagtgggg agatggattc tcttcgttca cagatggaag aaaggttcat gtctgcaaat 5580
ccttccaaag tgtcctatga acccatcaca accacactaa aacggaaaaca agaggatgtg 5640
tctgctactg tcattcagcg tgcttataga cgttaccgct taaggcaaaa tgtcaaaaat 5700
atatcaagta tatacataaa agatggagac agagatgatg atttactcaa taaaaaagat 5760
atggcttttg ataagttaa tgagaactca agtccagaaa aaacagatgc cacttcatcc 5820
accacctctc caccttcata tgatagtgtg acaaagccag acaaagagaa atatgaacaa 5880
gacagaacag aaaaggaaga caaagggaag gacagcaagg aaagcaaaa atag 5934

```

<210> 12

<211> 5934

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 12

```

atggcaatgt tgccctcccc aggacctcag agctttgtcc atttcacaaa acagtctctt 60
gccctcattg aacaacgcat tgctgaaaga aaatcaaagg aacccaaaga agaaaagaaa 120
gatgatgatg aagaagcccc aaagccaagc agtgacttgg aagctggcaa acaactgcc 180
ttcatctatg gggacattcc tcccggcatg gtgtcagagc ccctggagga cttggacccc 240
tactatgcag acaaaaagac tttcatagta ttgaacaaag ggaaaacaat cttccgtttc 300
aatgccacac ctgctttata tatgctttct cctttcagtc ctctaagaag aatatctatt 360

```

aagatttttag	tacactcctt	attcagcatg	ctcatcatgt	gcactattct	gacaaactgc	420
atattttatga	ccatgaataa	cccgcgggac	tggaccaaaa	atgtcagta	cacttttact	480
ggaatatata	cttttgaatc	acttgtaaaa	atccttgcaa	gaggcttctg	tgtaggagaa	540
ttcacttttc	ttcgtgaccc	gtggaactgg	ctggattttg	tcgtcattgt	tttgcggtat	600
ttaacagaat	ttgtaaacct	aggcaatggt	tcagctcttc	gaactttcag	agtattgaga	660
gctttgaaaa	ctattttctgt	aatcccaggc	ctgaagacaa	ttgtaggggc	tttgatccag	720
tcagtgaaga	agctttctga	tgtcatgata	ctgactgtgt	tctgtctgag	tgtgtttgca	780
ctaattggac	tacagctggt	catgggaaac	ctgaagcata	aatgttttcg	aaattcactt	840
gaaaataatg	aaacattaga	aagcataatg	aataccctag	agagtgaaga	agactttaga	900
aaatattttt	attacttgga	aggatccaaa	gatgctctcc	tttgtggttt	cagcacagat	960
tcaggtcagt	gtccagaggg	gtacacctgt	gtgaaaattg	gcagaaaccc	tgattatggc	1020
tacacgagct	ttgacacttt	cagctggggc	ttcttagcct	tgtttaggct	aatgacccaa	1080
gattactggg	aaaaccttta	ccaacagacg	ctgcgtgctg	ctggcaaaac	ctacatgata	1140
ttctttgtcg	tagtgatttt	cctgggctcc	ttttatctaa	taaacttgat	cctggctgtg	1200
gttgccatgg	catatgaaga	acagaaccag	gcaaaccattg	aagaagctaa	acagaaagaa	1260
ttagaatttc	aacagatggt	agaccgtctt	aaaaaaagagc	aagaagaagc	tgaggcaatt	1320
gcagcggcag	cggctgaata	tacaagtatt	aggagaagca	gaattatggg	cctctcagag	1380
agttcttctg	aaacatccaa	actgagctct	aaaagtgcata	aagaaagaag	aaacagaaga	1440
aagaaaaaga	atcaaaagaa	gctctccagt	ggagaggaaa	agggagatgc	tgagaaaattg	1500
tcgaaatcag	aatcagagga	cagcatcaga	agaaaaagtt	tccaccttgg	tgtcgaaggg	1560
cataggcgag	cacatgaaaa	gaggttgtct	acccccaatc	agtcaccact	cagcattcgt	1620
ggctccttgt	tttctgcaag	gcgaagcagc	agaacaagtc	tttttagttt	caaaggcaga	1680
ggaagagata	taggatctga	gactgaattt	gccgatgatg	agcacagcat	ttttggagac	1740
aatgagagca	gaaggggctc	actgttttgt	ccccacagac	cccaggagcg	acgcagcagt	1800
aacatcagcc	aagccagtag	gtccccacca	atgctgccgg	tgaacgggaa	aatgcacagt	1860
gctgtggact	gcaacggtgt	ggtctccctg	gttgatggac	gctcagccct	catgctcccc	1920
aatggacagc	ttctgccaga	gggcacgacc	aatcaaatat	acaagaaaag	gcgttgtagt	1980
tcctatctcc	tttcagagga	tatgctgaat	gatcccaacc	tcagacagag	agcaatgagt	2040
agagcaagca	tattaacaaa	cactgtggaa	gaacttgaag	agtccagaca	aaaatgtcca	2100
ccttggtggt	acagatttgc	acacaaattc	ttgatctgga	attgctctcc	atattggata	2160
aaattcaaaa	agtgtatcta	ttttattgta	atggatcctt	ttgtagatct	tgcagttacc	2220
atttgcatag	ttttaaacac	attatttatg	gctatggaac	accaccaaat	gactgaggaa	2280
ttcaaaaatg	tacttgctat	aggaaaattg	gtctttactg	gaatctttgc	agctgaaatg	2340
gtattaaaaac	tgattgccat	ggatccatat	gagtatttcc	aagtaggctg	gaatattttt	2400
gacagcctta	ttgtgacttt	aagtttagtg	gagctctttc	tagcagatgt	ggaaggattg	2460
tcagtctctgc	gatcattcag	actgctccga	gtcttcaagt	tggcaaaatc	ctggccaaca	2520
ttgaacatgc	tgattaagat	cattggtaac	tcagtagggg	ctctaggtaa	cctcacctta	2580
gtgttgggcca	tcacgtctct	catttttgct	gtggtcggca	tgcagctctt	tggtaaagagc	2640
tacaaagaat	gtgtctgcaa	gatcaatgat	gactgtacgc	tcccacgggtg	gcacatgaac	2700
gacttcttcc	actccttcc	gatttgtttc	cgcgtgctgt	gtggagagtg	gatagagacc	2760
atgtgggact	gtatggaggt	cgctgggtcaa	gctatgtgcc	ttattgttta	catgatggtc	2820
atggtcattg	gaaacctggt	ggtcctaacc	ctatttctgg	ccttattatt	gagctcattt	2880
agttcagaca	atcttacagc	aattgaagaa	gacctgatg	caaacaacct	ccagattgca	2940
gtgactagaa	ttaaaaaggg	aataaattat	gtgaaacaaa	ccttacgtga	atttattcta	3000
aaagcatttt	ccaaaaagcc	aaagatttcc	aggagagataa	gacaagcaga	agatctgaat	3060
actaagaagg	aaaactatat	ttctaaccat	acacttgctg	aaatgagcaa	aggtcacaa	3120
ttcctcaagg	aaaaagataa	aatcagtggt	tttggaaagca	gcgtggacaa	acacttgatg	3180
gaagacagtg	atggtcaatc	atttattcac	aatcccagcc	tcacagtgc	agtgccaat	3240
gcacctgggg	aatccgattt	ggaaaatatg	aatgctgagg	aacttagcag	tgattcggat	3300
agtgaatata	gcaaaagtga	attaaaccgg	tcaagctcct	cagagtgcag	cacagttgat	3360
aaccttttgc	ctggagaagg	agaagaagca	gaggctgaac	ctatgaattc	cgatgagcca	3420
gaggctgtgt	tcacagatgg	ttgtgtacgc	aggttctcat	gctgccaaat	taacatagag	3480
tcagggaaag	gaaaaatctg	gtggaacatc	aggaaaacct	gctacaagat	tgttgaaacac	3540
agttgggttg	aaagcttcat	tgtcctcatg	atcctgctca	gcagtgggtgc	cctggctttt	3600
gaagatattt	atattgaaag	gaaaaagacc	attaagatta	tcctggagta	tgcagacaag	3660
atcttcactt	acatcttcat	tctggaatag	cttctaaaaat	ggatagcata	tggttataaa	3720


```

acatatttca ccaatgcctg gtgttggtg gatttcctaa ttgttgatgt ttctttgggt 3780
acttttagtg caaacactct tggctactca gatcttggcc ccattaaatc ccttcggaca 3840
ctgagagctt taagacctct aagagcctta tctagatttg aaggaatgag ggctcgttg 3900
aatgcactca taggagcaat tccttccatc atgaatgtgc tacttggtg tcttatattc 3960
tggctgatat tcagcatcat gggagtaaat ttgtttgctg gcaagttcta tgagtgtatt 4020
aacaccacag atgggtcacg gtttcctgca agtcaagttc caaatcgttc cgaatgtttt 4080
gcccttatga atgttagtca aaatgtgcga tggaaaaacc tgaaagtga ctttgataat 4140
gtcggacttg gttacctatc tctgcttcaa gttgcaactt ttaagggatg gacgattatt 4200
atgtatgcag cagtggattc tgtaaatgta gacaagcagc ccaaatatga atatagcctc 4260
tacatgtata tttattttgt cgtctttatc atctttgggt cattcttcac tttgaacttg 4320
ttcattgggtg tcatcataga taatttcaac caacagaaaa agaagcttg aggtcaagac 4380
atctttatga cagaagaaca gaagaaatac tataatgcaa tgaaaaagct ggggtccaag 4440
aagccacaaa agccaattcc tcgaccaggg aacaaaatcc aaggatgtat atttgacct 4500
gtgacaaatc aagcctttga tattagtatc atgggttctta tctgtctcaa catggtaac 4560
atgatggtag aaaaggagg tcaaagtcaa catatgactg aagttttata ttggataaat 4620
gtggttttta taatcctttt cactggagaa tgtgtgctaa aactgatctc cctcagacac 4680
tactacttca ctgtaggatg gaatatTTTT gattttgttg ttgtgattat ctccattgta 4740
ggtagtttc tagctgattt gattgaaacg tattttgtgt cccctaccct gttccgagtg 4800
atccgtcttg ccaggattgg ccgaatccta cgtctagtca aaggagcaaa ggggatccgc 4860
acgctgctct ttgctttgat gatgtccctt cctgcgttgt ttaacatcgg cctcctgctc 4920
ttcctggtea tgttcatcta cgcctatctt ggaatgtcca actttgccta tgttaaaaag 4980
gaagatggaa ttaatgacat gttcaatttt gagacctttg gcaacagtat gatttgcttg 5040
ttccaaatta caacctctgc tggctgggat ggattgctag cacctattct taacagtaag 5100
ccaccgact gtgacccaaa aaaagttcat cctggaagt cagttgaagg agactgtgg 5160
aaccctctg ttggaatatt ctactttgtt agttatatca tcatatcctt cctggttg 5220
gtgaacatgt acattgcagt catactggag aatttttagt ttgccactga agaaagtact 5280
gaacctctga gtgaggatga ctttgagatg ttctatgagg tttgggagaa gtttgatccc 5340
gatgcgaccc agtttataga gttctctaaa ctctctgatt ttgcagctgc cctggatcct 5400
cctcttctca tagcaaaaacc caacaaagtc cagctcattg ccattgatct gcccatgg 5460
agtggtgacc ggatccattg tcttgacatc ttatttgctt ttacaaagcg tgttttgg 5520
gagagtgggg agatggattc tcttcgttca cagatggaag aaaggttcat gtctgcaaat 5580
ccttccaaag tgtcctatga acccatcaca accacactaa aacggaaca agaggatgtg 5640
tctgtactg tcatcagcg tgcttataga cgttaccgct taaggcaaaa tgcaaaaaat 5700
atatcaagta tatacataaa agatggagac agagatgatg atttactcaa taaaaagat 5760
atggcttttg ataattgtta tgagaactca agtccagaaa aaacagatgc cacttcatcc 5820
accacctctc caccttcata tgatagtgtg acaaagccag acaaagagaa atatgaacaa 5880
gacagaacag aaaaggaaga caaagggaaa gacagcaagg aaagcaaaaa atag 5934

```

<210> 13

<211> 5934

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 13

```

atggcaatgt tgcctcccc aggacctcag agctttgtcc atttcacaaa acagtctctt 60
gccctcattg aacaacgcat tgctgaaaga aaatcaaagg aacccaaaga agaaaagaaa 120
gatgatgatg aagaagcccc aaagccaagc agtgacttgg aagctggcaa acaactgccc 180
ttcatctatg gggacattcc tcccggcatg gtgtcagagc ccctggagga cttggacccc 240
tactatgcag acaaaaagac tttcatagta ttgaacaaag ggaaaacaat ctccggttcc 300
aatgccacac ctgctttata tatgctttct cttttcagtc ctctaagaag aatatctatt 360
aagattttag tacactcctt attcagcatg ctcacatgtg gcactattct gacaaactgc 420
atatttatga ccatgaataa cccgcccggac tggacaaaaa atgtcgagta cacttttact 480

```

ggaatatata	cttttgaatc	acttgtaaaa	atccttgcaa	gaggcttctg	tgtaggagaa	540
ttcacttttc	ttcgtgaccc	gtggaactgg	ctggattttg	tcgtcattgt	ttttgcgtat	600
ttaacagaat	ttgtaaacct	aggcaatggt	tcagctcttc	gaactttcag	agtattgaga	660
gctttgaaaa	ctattttctgt	aatcccaggc	ctgaagacaa	ttgtaggggc	tttgatccag	720
tcagtgaaga	agctttctga	tgtcatgate	ctgactgtgt	tctgtctgag	tgtgtttgca	780
ctaattggac	tacagctggt	catgggaaac	ctgaagcata	aatgttttcg	aaattcactt	840
gaaaataatg	aaacattaga	aagcataatg	aataccctag	agagtgaaga	agactttaga	900
aaatattttt	attacttgga	aggatccaaa	gatgctctcc	tttgtgggtt	cagcacagat	960
tcaggtcagt	gtccagaggg	gtcacacctgt	gtgaaaattg	gcagaaaccc	tgattatggc	1020
tacacgagct	ttgacacttt	cagctgggcc	ttcttagcct	tgtttaggct	aatgacccaa	1080
gattactggg	aaaaccttta	ccaacagacg	ctgcgtgctg	ctggcaaaac	ctacatgac	1140
ttctttgtcg	tagtgatttt	cctgggctcc	ttttatctaa	taaacttgat	cctggctgtg	1200
gttgccatgg	catatgaaga	acagaaccag	gcaaacatg	aagaagctaa	acagaaagaa	1260
ttagaatttc	aacagatggt	agaccgtcct	aaaaaagagc	aagaagaagc	tgaggcaatt	1320
gcagcggcag	cggctgaata	tacaagtatt	aggagaagca	gaattatggg	cctctcagag	1380
agttcttctg	aaacatccaa	actgagctct	aaaagtgtct	aagaaagaag	aaacagaaga	1440
aagaaaaaga	atcaaaagaa	gctctccagt	ggagaggaaa	agggagatgc	tgagaaattg	1500
tcgaaatcag	aatcagagga	cagcatcaga	agaaaaagtt	tccaccttgg	tgtcgaaggg	1560
catagggcag	cacatgaaaa	gagggtgtct	acccccaatc	agtcaccact	cagcattcgt	1620
ggctccttgt	tttctgcaag	gcgaagcagc	agaacaagtc	tttttagttt	caaaggcaga	1680
ggaagagata	taggatctga	gactgaattt	gccgatgatg	agcacagcat	ttttggagac	1740
aatgagagca	gaaggggctc	actgtttgtg	ccccacagac	cccaggagcg	acgcagcagt	1800
aacatcagcc	aagccagtag	gtccccacca	atgctgccgg	tgaacgggaa	aatgcacagt	1860
gctgtggact	gcaacgggtg	ggtctccctg	gttgatggac	gctcagccct	catgctcccc	1920
aatggacagc	ttctgcagaa	gggcacgacc	aatcaaatac	acaagaaaag	gcgttgtagt	1980
tcctatctcc	tttcagagga	tatgctgaat	gatcccaacc	tcagacagag	agcaatgagt	2040
agagcaagca	tattaacaaa	cactgtggaa	gaacttgaag	agtccagaca	aaaatgtcca	2100
ccttggtggt	acagatttgc	acacaaattc	ttgatctgga	attgctctcc	atattggata	2160
aaattcaaaa	agtgtatcta	ttttattgta	atggatcctt	ttgtagatct	tgcaattacc	2220
atttgcatag	ttttaaacac	attatttatg	gctatggaac	accaccaat	gactgaggaa	2280
ttcaaaaatg	tacttgctat	aggaaaattg	gtctttactg	gaatctttgc	agctgaaatg	2340
gtattaaaac	tgattgccat	ggatccatat	gagtatttcc	aagttaggctg	gaatattttt	2400
gacagcctta	ttgtgacttt	aagtttagtg	gagctctttc	tagcagatgt	ggaaggattg	2460
tcagtctctg	gatcattcag	actgctccga	gtcttcaagt	tggcaaaatc	ctggccaaca	2520
ttgaacatgc	tgattaagat	cattggtaac	tcagtagggg	ctctaggtaa	cctcacctta	2580
gtgttggcca	tcacgtctct	catttttgc	gtggtcggca	tgacgtctct	tggttaagagc	2640
tacaaagaat	gtgtctgcaa	gatcaatgat	gactgtacgc	tcccacgggtg	gcacatgaac	2700
gacttcttcc	actccttcc	gattgtgttc	cgctgtgtgt	gtggagagt	gatagagacc	2760
atgtgggact	gtatggaggt	cgctgtgcaa	gctatgtgcc	ttattgttta	catgatggtc	2820
atggtcattg	gaaacctggt	ggtcctaaac	ctatttctgg	ccttattatt	gagctcattt	2880
agttcagaca	atcttacagc	aattgaagaa	gacctgtatg	caaacaacct	ccagattgca	2940
gtgactagaa	ttaaaaaggg	aataaattat	gtgaaacaaa	ccttacgtga	atttattcta	3000
aaagcatttt	ccaaaaagcc	aaagatttcc	aggagataaa	gacaagcaga	agatctgaat	3060
actaagaagg	aaaactatat	ttctaaccat	acacttgctg	aaatgagcaa	aggtcacaat	3120
ttcctcaagg	aaaaagataa	aatcagtgg	tttggagcaa	gcgtggacaa	acacttgatg	3180
gaagacagtg	atggtcaatc	atttattcac	aatcccagcc	tcacagtgc	agtggcaatt	3240
gcacctgggg	aatccgattt	ggaaaaatg	aatgctgagg	aacttagcag	tgattcggat	3300
agtgaataca	gcaaagttag	attaaaccgg	tcaagctcct	cagagtgcag	cacagttgat	3360
aacctttttc	ctggagaagg	agaagaagca	gaggctgaac	ctatgaattc	cgatgagcca	3420
gaggcctggt	tcacagatgg	ttgtgtacgg	aggttctcat	gctgccaagt	taacatagag	3480
tcagggaaag	gaaaaatctg	gtggaacatc	aggaaaacct	gctacaagat	tggttaaacac	3540
agttggtttg	aaagcttcat	tgtcctcatg	atcctgtctc	gcagtgggtc	cctggctttt	3600
gaagatattt	atattgaaag	gaaaaagacc	attaagatta	tcctggagta	tgacagacaag	3660
atcttcactt	acatcttcat	tctggaaatg	cttctaaaa	ggatagcata	tggttataaa	3720
acatattttc	ccaatgcctg	gtgttggctg	gatttccctc	ttgttgatgt	ttctttggtt	3780
acttttagtg	caaacactct	tggctactca	gatcttggcc	ccattaaatc	ccttcggaca	3840

```

ctgagagctt taagacctct aagagcctta tctagatttg aaggaatgag ggtcgttggtg 3900
aatgcactca taggagcaat tccttccatc atgaatgtgc tacttggtgtg tcttatattc 3960
tggctgatat tcagcatcat gggagtaa atgtttgtctg gcaagttcta tgagtgtatt 4020
aacaccacag atgggtcacg gtttcctgca agtcaagttc caaatcgttc cgaatgtttt 4080
gcccttatga atgttagtca aaatgtgcga tggaaaaacc tgaaagtga ctttgataat 4140
gtcggacttg gttacctatc tctgcttcaa gttgcaactt ttaagggatg gacgattatt 4200
atgtatgcag cagtggattc tgtaaatgta gacaagcagc ccaaatatga atatagcctc 4260
tacatgtata tttattttgt cgtctttatc atctttgggt cattcttcac tttgaacttg 4320
ttcattgggtg tcatcataga taatttcaac caacagaaaa agaagcttgg aggtcaagac 4380
atctttatga cagaagaaca gaagaaatac tataatgcaa tgaaaaagct ggggtccaag 4440
aagccacaaa agccaattcc tcgaccaggg aacaaaatcc aaggatgtat atttgaccta 4500
gtgacaaatc aagcctttga tattagtatc atggttctta tctgtctcaa catggtaacc 4560
atgatggtag aaaaggaggg tcaaagtc aaatgtactg aagttttata ttggataaat 4620
gtgggtttta taatcctttt cactggagaa tgtgtgctaa aactgatctc cctcagacac 4680
tactacttca ctgtaggatg gaataatttt gattttgtgt ttgtgattat ctccattgta 4740
ggtatgtttc tagctgattt gattgaaacg tattttgtgt cccctaccct gtcccgagt 4800
atccgtcttg ccaggattgg ccgaatccta cgtctagtca aaggagcaaa ggggatccgc 4860
acgctgctct ttgctttgat gatgtccctt cctgcgttgt ttaacatcgg cctcctgctc 4920
ttcctggtea tgttcatcta cgccatcttt ggaatgtcca actttgccta tgtaaaaaag 4980
gaagatggaa ttaatgacat gttcaatttt gagaccttg gcaacagtat gatttgacctg 5040
ttccaaatta caacctctgc tggtggggat ggattgctag cacctattct taacagtaag 5100
ccaccgact gtgacccaaa aaaagttcat cctggaagtt cagttgaagg agactgtggt 5160
aaccatctg ttggaatatt ctactttgtt agttatatca tcatatcctt cctgggttggt 5220
gtgaacatgt acattgcagt catactggag aatttttagtg ttgccactga agaaagtact 5280
gaacctctga gtgaggatga ctttgagatg ttctatgagg tttgggagaa gtttgatccc 5340
gatgcgaccc agtttataga gttctctaaa ctctctgatt ttgcagctgc cctggatcct 5400
cctcttctca tagcaaaacc caacaaagtc cagctcattg ccatggatct gcccatggtt 5460
agtgtgacc ggtaccattg tcttgacatc ttatttgctt ttacaaagcg tgttttggtt 5520
gagagtgggg agatggattc tcttcgttca cagatggaag aaaggttcat gtctgcaaat 5580
ccttccaaag tgtcctatga acccatcaca accacactaa aacggaaaaca agaggatgtg 5640
tctgctactg tcattcagcg tgcttataga cgttaccgct taaggcaaaa tgtcaaaaat 5700
atatcaagta tatacataaa agatggagac agagatgatg atttactcaa taaaaaagat 5760
atggcttttg ataagttaa tgagaactca agtccagaaa aaacagatgc cacttcattc 5820
accactctc cactttcata tgatagtgt acaaaagccag acaaaagaaa atatgaacaa 5880
gacagaacag aaaaggaaga caaagggaaa gacagcaagg aaagcaaaaa atag 5934

```

<210> 14

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 14

gcccttcatc tatgg

15

<210> 15

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 15
 aaccgcgcgg actgg 15

 <210> 16
 <211> 15
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 16
 gctccccaat ggaca 15

 <210> 17
 <211> 15
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 17
 atacacaaga aaagg 15

 <210> 18
 <211> 15
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 18
 tcttgcaatt accat 15

 <210> 19
 <211> 15
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 19
 accctttgcc tggag 15

 <210> 20
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

<400> 20
 gtcccgccca ttgcctgaca c 21

<210> 21
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

<400> 21
 ttctgtcat gatatggta ttcac 25

<210> 22
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

<400> 22
 tgatagatgc gttgatgaca ttgg 24

<210> 23
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

<400> 23
 ttcataaatg cagtaacttc ctgg 24

<210> 24
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

<400> 24
 tgtttctttt aagtcagtac agag 24

<210> 25
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 25
 agagccattc acaagaccag ag 22

 <210> 26
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 26
 actcagaaag gcagagaggt g 21

 <210> 27
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 27
 ttgccatggt atcaatgtct gtg 23

 <210> 28
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 28
 gactgatttg tatctgggta ggag 24

 <210> 29
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

<400> 29
 gcaatgtaat taggaaggtg tgag 24

 <210> 30
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 30
 tttgaatgaa ctctaaatga actacc 26

 <210> 31
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 31
 taagtattag gcgttaagac aaacc 25

 <210> 32
 <211> 5
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 32
 Pro Phe Val Tyr Gly
 1 5

 <210> 33
 <211> 5
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/note =
 synthetic construct

 <400> 33
 Asn Pro Gln Asp Trp
 1 5

<210> 34
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 34
Leu Pro Tyr Gly Gln
1 5

<210> 35
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 35
Ile His Arg Lys Arg
1 5

<210> 36
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 36
Leu Ala Val Thr Ile
1 5

<210> 37
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 37
Asn Pro Phe Pro Gly
1 5

<210> 38
 <211> 1977
 <212> PRT
 <213> Homo Sapien

<400> 38

Met	Ala	Met	Leu	Pro	Pro	Pro	Gly	Pro	Gln	Ser	Phe	Val	His	Phe	Thr
1			5					10					15		
Lys	Gln	Ser	Leu	Ala	Leu	Ile	Glu	Gln	Arg	Ile	Ala	Glu	Arg	Lys	Ser
			20					25					30		
Lys	Glu	Pro	Lys	Glu	Glu	Lys	Lys	Asp	Asp	Asp	Glu	Glu	Ala	Pro	Lys
		35					40					45			
Pro	Ser	Ser	Asp	Leu	Glu	Ala	Gly	Lys	Gln	Leu	Pro	Phe	Ile	Tyr	Gly
		50				55					60				
Asp	Ile	Pro	Pro	Gly	Met	Val	Ser	Glu	Pro	Leu	Glu	Asp	Leu	Asp	Pro
65				70						75					80
Tyr	Tyr	Ala	Asp	Lys	Lys	Thr	Phe	Ile	Val	Leu	Asn	Lys	Gly	Lys	Thr
			85						90					95	
Ile	Phe	Arg	Phe	Asn	Ala	Thr	Pro	Ala	Leu	Tyr	Met	Leu	Ser	Pro	Phe
			100					105					110		
Ser	Pro	Leu	Arg	Arg	Ile	Ser	Ile	Lys	Ile	Leu	Val	His	Ser	Leu	Phe
		115					120					125			
Ser	Met	Leu	Ile	Met	Cys	Thr	Ile	Leu	Thr	Asn	Cys	Ile	Phe	Met	Thr
	130					135					140				
Met	Asn	Asn	Pro	Pro	Asp	Trp	Thr	Lys	Asn	Val	Glu	Tyr	Thr	Phe	Thr
145					150					155					160
Gly	Ile	Tyr	Thr	Phe	Glu	Ser	Leu	Val	Lys	Ile	Leu	Ala	Arg	Gly	Phe
				165					170					175	
Cys	Val	Gly	Glu	Phe	Thr	Phe	Leu	Arg	Asp	Pro	Trp	Asn	Trp	Leu	Asp
			180					185					190		
Phe	Val	Val	Ile	Val	Phe	Ala	Tyr	Leu	Thr	Glu	Phe	Val	Asn	Leu	Gly
		195					200					205			
Asn	Val	Ser	Ala	Leu	Arg	Thr	Phe	Arg	Val	Leu	Arg	Ala	Leu	Lys	Thr
	210					215					220				
Ile	Ser	Val	Ile	Pro	Gly	Leu	Lys	Thr	Ile	Val	Gly	Ala	Leu	Ile	Gln
225					230					235					240
Ser	Val	Lys	Lys	Leu	Ser	Asp	Val	Met	Ile	Leu	Thr	Val	Phe	Cys	Leu
			245						250					255	
Ser	Val	Phe	Ala	Leu	Ile	Gly	Leu	Gln	Leu	Phe	Met	Gly	Asn	Leu	Lys
			260					265					270		
His	Lys	Cys	Phe	Arg	Asn	Ser	Leu	Glu	Asn	Asn	Glu	Thr	Leu	Glu	Ser
	275						280						285		
Ile	Met	Asn	Thr	Leu	Glu	Ser	Glu	Glu	Asp	Phe	Arg	Lys	Tyr	Phe	Tyr
	290					295					300				
Tyr	Leu	Glu	Gly	Ser	Lys	Asp	Ala	Leu	Leu	Cys	Gly	Phe	Ser	Thr	Asp
305					310					315					320
Ser	Gly	Gln	Cys	Pro	Glu	Gly	Tyr	Thr	Cys	Val	Lys	Ile	Gly	Arg	Asn
			325						330					335	
Pro	Asp	Tyr	Gly	Tyr	Thr	Ser	Phe	Asp	Thr	Phe	Ser	Trp	Ala	Phe	Leu
			340					345					350		
Ala	Leu	Phe	Arg	Leu	Met	Thr	Gln	Asp	Tyr	Trp	Glu	Asn	Leu	Tyr	Gln
		355					360					365			
Gln	Thr	Leu	Arg	Ala	Ala	Gly	Lys	Thr	Tyr	Met	Ile	Phe	Phe	Val	Val
	370					375					380				
Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Ile	Asn	Leu	Ile	Leu	Ala	Val

385					390					395				400
Val	Ala	Met	Ala	Tyr	Glu	Glu	Gln	Asn	Gln	Ala	Asn	Ile	Glu	Glu
				405					410					415
Lys	Gln	Lys	Glu	Leu	Glu	Phe	Gln	Gln	Met	Leu	Asp	Arg	Leu	Lys
			420					425					430	
Glu	Gln	Glu	Glu	Ala	Glu	Ala	Ile	Ala	Ala	Ala	Ala	Ala	Glu	Tyr
			435				440					445		Thr
Ser	Ile	Arg	Arg	Ser	Arg	Ile	Met	Gly	Leu	Ser	Glu	Ser	Ser	Ser
	450					455					460			Glu
Thr	Ser	Lys	Leu	Ser	Ser	Lys	Ser	Ala	Lys	Glu	Arg	Arg	Asn	Arg
465					470					475				480
Lys	Lys	Lys	Asn	Gln	Lys	Lys	Leu	Ser	Ser	Gly	Glu	Glu	Lys	Gly
			485						490					495
Ala	Glu	Lys	Leu	Ser	Lys	Ser	Glu	Ser	Glu	Asp	Ser	Ile	Arg	Arg
			500					505					510	Lys
Ser	Phe	His	Leu	Gly	Val	Glu	Gly	His	Arg	Arg	Ala	His	Glu	Lys
	515					520						525		Arg
Leu	Ser	Thr	Pro	Asn	Gln	Ser	Pro	Leu	Ser	Ile	Arg	Gly	Ser	Leu
	530					535					540			Phe
Ser	Ala	Arg	Arg	Ser	Ser	Arg	Thr	Ser	Leu	Phe	Ser	Phe	Lys	Gly
545					550					555				560
Gly	Arg	Asp	Ile	Gly	Ser	Glu	Thr	Glu	Phe	Ala	Asp	Asp	Glu	His
			565					570						575
Ile	Phe	Gly	Asp	Asn	Glu	Ser	Arg	Arg	Gly	Ser	Leu	Phe	Val	Pro
			580					585					590	His
Arg	Pro	Gln	Glu	Arg	Arg	Ser	Ser	Asn	Ile	Ser	Gln	Ala	Ser	Arg
	595					600					605			Ser
Pro	Pro	Met	Leu	Pro	Val	Asn	Gly	Lys	Met	His	Ser	Ala	Val	Asp
	610					615					620			Cys
Asn	Gly	Val	Val	Ser	Leu	Val	Asp	Gly	Arg	Ser	Ala	Leu	Met	Leu
625					630					635				640
Asn	Gly	Gln	Leu	Leu	Pro	Glu	Gly	Thr	Thr	Asn	Gln	Ile	His	Lys
			645					650						655
Arg	Arg	Cys	Ser	Ser	Tyr	Leu	Leu	Ser	Glu	Asp	Met	Leu	Asn	Asp
			660					665					670	Pro
Asn	Leu	Arg	Gln	Arg	Ala	Met	Ser	Arg	Ala	Ser	Ile	Leu	Thr	Asn
	675					680						685		Thr
Val	Glu	Glu	Leu	Glu	Glu	Ser	Arg	Gln	Lys	Cys	Pro	Pro	Trp	Trp
	690					695					700			Tyr
Arg	Phe	Ala	His	Lys	Phe	Leu	Ile	Trp	Asn	Cys	Ser	Pro	Tyr	Trp
705					710				715					720
Lys	Phe	Lys	Lys	Cys	Ile	Tyr	Phe	Ile	Val	Met	Asp	Pro	Phe	Val
			725					730						735
Leu	Ala	Ile	Thr	Ile	Cys	Ile	Val	Leu	Asn	Thr	Leu	Phe	Met	Ala
	740							745					750	Met
Glu	His	His	Pro	Met	Thr	Glu	Glu	Phe	Lys	Asn	Val	Leu	Ala	Ile
	755					760						765		Gly
Asn	Leu	Val	Phe	Thr	Gly	Ile	Phe	Ala	Ala	Glu	Met	Val	Leu	Lys
	770				775					780				Leu
Ile	Ala	Met	Asp	Pro	Tyr	Glu	Tyr	Phe	Gln	Val	Gly	Trp	Asn	Ile
785					790				795					800
Asp	Ser	Leu	Ile	Val	Thr	Leu	Ser	Leu	Val	Glu	Leu	Phe	Leu	Ala
			805					810						Asp
Val	Glu	Gly	Leu	Ser	Val	Leu	Arg	Ser	Phe	Arg	Leu	Leu	Arg	Val
			820					825					830	Phe
Lys	Leu	Ala	Lys	Ser	Trp	Pro	Thr	Leu	Asn	Met	Leu	Ile	Lys	Ile

835				840				845							
Gly	Asn	Ser	Val	Gly	Ala	Leu	Gly	Asn	Leu	Thr	Leu	Val	Leu	Ala	Ile
850				855				860							
Ile	Val	Phe	Ile	Phe	Ala	Val	Val	Gly	Met	Gln	Leu	Phe	Gly	Lys	Ser
865				870				875				880			
Tyr	Lys	Glu	Cys	Val	Cys	Lys	Ile	Asn	Asp	Asp	Cys	Thr	Leu	Pro	Arg
885				890				895				900			
Trp	His	Met	Asn	Asp	Phe	Phe	His	Ser	Phe	Leu	Ile	Val	Phe	Arg	Val
900				905				910				915			
Leu	Cys	Gly	Glu	Trp	Ile	Glu	Thr	Met	Trp	Asp	Cys	Met	Glu	Val	Ala
915				920				925				930			
Gly	Gln	Ala	Met	Cys	Leu	Ile	Val	Tyr	Met	Met	Val	Met	Val	Ile	Gly
930				935				940				945			
Asn	Leu	Val	Val	Leu	Asn	Leu	Phe	Leu	Ala	Leu	Leu	Leu	Ser	Ser	Phe
950				955				960				965			
Ser	Ser	Asp	Asn	Leu	Thr	Ala	Ile	Glu	Glu	Asp	Pro	Asp	Ala	Asn	Asn
965				970				975				980			
Leu	Gln	Ile	Ala	Val	Thr	Arg	Ile	Lys	Lys	Gly	Ile	Asn	Tyr	Val	Lys
980				985				990				995			
Gln	Thr	Leu	Arg	Glu	Phe	Ile	Leu	Lys	Ala	Phe	Ser	Lys	Lys	Pro	Lys
995				1000				1005				1010			
Ile	Ser	Arg	Glu	Ile	Arg	Gln	Ala	Glu	Asp	Leu	Asn	Thr	Lys	Lys	Glu
1010				1015				1020				1025			
Asn	Tyr	Ile	Ser	Asn	His	Thr	Leu	Ala	Glu	Met	Ser	Lys	Gly	His	Asn
1030				1035				1040				1045			
Phe	Leu	Lys	Glu	Lys	Asp	Lys	Ile	Ser	Gly	Phe	Gly	Ser	Ser	Val	Asp
1045				1050				1055				1060			
Lys	His	Leu	Met	Glu	Asp	Ser	Asp	Gly	Gln	Ser	Phe	Ile	His	Asn	Pro
1060				1065				1070				1075			
Ser	Leu	Thr	Val	Thr	Val	Pro	Ile	Ala	Pro	Gly	Glu	Ser	Asp	Leu	Glu
1075				1080				1085				1090			
Asn	Met	Asn	Ala	Glu	Glu	Leu	Ser	Ser	Asp	Ser	Asp	Ser	Glu	Tyr	Ser
1090				1095				1100				1105			
Lys	Val	Arg	Leu	Asn	Arg	Ser	Ser	Ser	Ser	Glu	Cys	Ser	Thr	Val	Asp
1110				1115				1120				1125			
Asn	Pro	Leu	Pro	Gly	Glu	Gly	Glu	Glu	Ala	Glu	Ala	Glu	Pro	Met	Asn
1125				1130				1135				1140			
Ser	Asp	Glu	Pro	Glu	Ala	Cys	Phe	Thr	Asp	Gly	Cys	Val	Arg	Arg	Phe
1140				1145				1150				1155			
Ser	Cys	Cys	Gln	Val	Asn	Ile	Glu	Ser	Gly	Lys	Gly	Lys	Ile	Trp	Trp
1155				1160				1165				1170			
Asn	Ile	Arg	Lys	Thr	Cys	Tyr	Lys	Ile	Val	Glu	His	Ser	Trp	Phe	Glu
1170				1175				1180				1185			
Ser	Phe	Ile	Val	Leu	Met	Ile	Leu	Leu	Ser	Ser	Gly	Ala	Leu	Ala	Phe
1190				1195				1200				1205			
Glu	Asp	Ile	Tyr	Ile	Glu	Arg	Lys	Lys	Thr	Ile	Lys	Ile	Ile	Leu	Glu
1210				1215				1220				1225			
Tyr	Ala	Asp	Lys	Ile	Phe	Thr	Tyr	Ile	Phe	Ile	Leu	Glu	Met	Leu	Leu
1220				1225				1230				1235			
Lys	Trp	Ile	Ala	Tyr	Gly	Tyr	Lys	Thr	Tyr	Phe	Thr	Asn	Ala	Trp	Cys
1235				1240				1245				1250			
Trp	Leu	Asp	Phe	Leu	Ile	Val	Asp	Val	Ser	Leu	Val	Thr	Leu	Val	Ala
1250				1255				1260				1265			
Asn	Thr	Leu	Gly	Tyr	Ser	Asp	Leu	Gly	Pro	Ile	Lys	Ser	Leu	Arg	Thr
1270				1275				1280				1285			
Leu	Arg	Ala	Leu	Arg	Pro	Leu	Arg	Ala	Leu	Ser	Arg	Phe	Glu	Gly	Met

				1285					1290					1295			
Arg	Val	Val	Val	Asn	Ala	Leu	Ile	Gly	Ala	Ile	Pro	Ser	Ile	Met	Asn		
			1300					1305					1310				
Val	Leu	Leu	Val	Cys	Leu	Ile	Phe	Trp	Leu	Ile	Phe	Ser	Ile	Met	Gly		
			1315				1320					1325					
Val	Asn	Leu	Phe	Ala	Gly	Lys	Phe	Tyr	Glu	Cys	Ile	Asn	Thr	Thr	Asp		
			1330			1335					1340						
Gly	Ser	Arg	Phe	Pro	Ala	Ser	Gln	Val	Pro	Asn	Arg	Ser	Glu	Cys	Phe		
1345				1350						1355					1360		
Ala	Leu	Met	Asn	Val	Ser	Gln	Asn	Val	Arg	Trp	Lys	Asn	Leu	Lys	Val		
			1365					1370						1375			
Asn	Phe	Asp	Asn	Val	Gly	Leu	Gly	Tyr	Leu	Ser	Leu	Leu	Gln	Val	Ala		
			1380				1385						1390				
Thr	Phe	Lys	Gly	Trp	Thr	Ile	Ile	Met	Tyr	Ala	Ala	Val	Asp	Ser	Val		
			1395			1400						1405					
Asn	Val	Asp	Lys	Gln	Pro	Lys	Tyr	Glu	Tyr	Ser	Leu	Tyr	Met	Tyr	Ile		
			1410			1415					1420						
Tyr	Phe	Val	Val	Phe	Ile	Ile	Phe	Gly	Ser	Phe	Phe	Thr	Leu	Asn	Leu		
1425				1430						1435					1440		
Phe	Ile	Gly	Val	Ile	Ile	Asp	Asn	Phe	Asn	Gln	Gln	Lys	Lys	Lys	Leu		
			1445					1450						1455			
Gly	Gly	Gln	Asp	Ile	Phe	Met	Thr	Glu	Glu	Gln	Lys	Lys	Tyr	Tyr	Asn		
			1460					1465					1470				
Ala	Met	Lys	Lys	Leu	Gly	Ser	Lys	Lys	Pro	Gln	Lys	Pro	Ile	Pro	Arg		
			1475			1480						1485					
Pro	Gly	Asn	Lys	Ile	Gln	Gly	Cys	Ile	Phe	Asp	Leu	Val	Thr	Asn	Gln		
			1490			1495					1500						
Ala	Phe	Asp	Ile	Ser	Ile	Met	Val	Leu	Ile	Cys	Leu	Asn	Met	Val	Thr		
1505				1510						1515					1520		
Met	Met	Val	Glu	Lys	Glu	Gly	Gln	Ser	Gln	His	Met	Thr	Glu	Val	Leu		
			1525					1530						1535			
Tyr	Trp	Ile	Asn	Val	Val	Phe	Ile	Ile	Leu	Phe	Thr	Gly	Glu	Cys	Val		
			1540					1545					1550				
Leu	Lys	Leu	Ile	Ser	Leu	Arg	His	Tyr	Tyr	Phe	Thr	Val	Gly	Trp	Asn		
			1555			1560						1565					
Ile	Phe	Asp	Phe	Val	Val	Val	Ile	Ile	Ser	Ile	Val	Gly	Met	Phe	Leu		
			1570			1575					1580						
Ala	Asp	Leu	Ile	Glu	Thr	Tyr	Phe	Val	Ser	Pro	Thr	Leu	Phe	Arg	Val		
1585				1590						1595					1600		
Ile	Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg	Leu	Val	Lys	Gly	Ala		
			1605					1610						1615			
Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu	Met	Met	Ser	Leu	Pro	Ala		

1730		1735		1740
Ile Ala Val Ile Leu Glu Asn Phe Ser Val Ala Thr Glu Glu Ser Thr				
1745		1750		1755
Glu Pro Leu Ser Glu Asp Asp Phe Glu Met Phe Tyr Glu Val Trp Glu				1760
	1765		1770	1775
Lys Phe Asp Pro Asp Ala Thr Gln Phe Ile Glu Phe Ser Lys Leu Ser				
	1780		1785	1790
Asp Phe Ala Ala Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys Pro Asn				
	1795		1800	1805
Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg				
	1810		1815	1820
Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly				
1825		1830		1835
Glu Ser Gly Glu Met Asp Ser Leu Arg Ser Gln Met Glu Glu Arg Phe				1840
	1845		1850	1855
Met Ser Ala Asn Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr				
	1860		1865	1870
Leu Lys Arg Lys Gln Glu Asp Val Ser Ala Thr Val Ile Gln Arg Ala				
	1875		1880	1885
Tyr Arg Arg Tyr Arg Leu Arg Gln Asn Val Lys Asn Ile Ser Ser Ile				
	1890		1895	1900
Tyr Ile Lys Asp Gly Asp Arg Asp Asp Asp Leu Leu Asn Lys Lys Asp				
1905		1910		1915
Met Ala Phe Asp Asn Val Asn Glu Asn Ser Ser Pro Glu Lys Thr Asp				1920
	1925		1930	1935
Ala Thr Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys				
	1940		1945	1950
Pro Asp Lys Glu Lys Tyr Glu Gln Asp Arg Thr Glu Lys Glu Asp Lys				
	1955		1960	1965
Gly Lys Asp Ser Lys Glu Ser Lys Lys				
1970		1975		